COMPLICATIONS OF LAPAROSCOPIC PROCEDURES – A PROSPECTIVE ANALYTICAL STUDY

Dissertation Submitted in partial

fulfillment of the university regulations for

MS DEGREE IN

GENERAL SURGERY

(BRANCH I)

APRIL 2013

THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY

CHENNAI – TAMIL NADU

CERTIFICATE

This is to certify that this dissertation titled **"COMPLICATIONS OF LAPAROSCOPIC PROCEDURES – A PROSPECTIVE ANALYTICAL STUDY**" submitted by **DR.G.RANJNI** to the faculty of General Surgery, The Tamilnadu Dr. M.G.R .Medical University, Chennai in partial fulfilment of the requirement for the award of MS degree Branch I General Surgery ,is a bonafide research work carried out by her under our direct supervision and guidance from September 2010 to September 2012.

Prof. Dr.S. Meenakshi Sundaram. M.S, **Prof.Dr.D.SoundarRajan. M.S**

Professor and Unit chief,
Department of General surgery.
Madurai Medical College. Madurai.,

Professor and the Head of the department,
Department of General Surgery,
Madurai Medical College.Madurai.

DECLARATION

I, **Dr.G.Ranjni** solemnly declare that the dissertation titled **COMPLICATIONS OF LAPAROSCOPIC PROCEDURES –A PROSPECTIVE ANALYTICAL STUDY** has been prepared by me. This is submitted to The TamilNadu Dr. M.G.R. Medical University, Chennai in partial fulfilment of the regulations for the award of MS degree (Branch I) General Surgery.

PLACE:

DATE: **DR.RANJNI.G**

ACKNOWLEDGEMENT

At the outset, I wish to express my sincere gratitude to our unit chief **Prof. Dr.S. Meenakshi Sundaram. M.S,** for his expert supervision and valuable suggestions

I wish to express my whole hearted thanks to our Assistant Professors **Dr.S.R.Dhamodharan.M,S., Dr.P.Amutha. M.S, Dr.M.Lakshmi Narayanan.M.S., Dr.J.Amuthan.M.S** for their constant encouragement and excellent guidance.

I wish to thank **Prof.Dr.D.SoundarRajan. M.S.,** Professor and Head of the Department of Surgery for his valuable guidance and advices.

I am greatly indebted to **Prof.Dr.Mohan.M.S., DEAN**, Madurai Medical College & Government Rajaji Hospital for their kind permission to allow me to utilize the clinical material from the hospital.

I whole heartedly thank all the patients without whom the study couldn't have been a reality.

CONTENTS

INTRODUCTION

HISTORY:

The field of minimally invasive surgery has experienced an explosive growth in last two decades. Though the art of surgery has gone through a complete evolutionary process due to antisepsis, antibiotics and anaesthesia, the field of laparoscopic surgery has undergone major changes in the recent past.

The instruments that help in the visualisation of body's inner aspect were used as early as the days of Hippocrates and ancient Roman. A three bladed vaginal speculum which is very similar to the modern day vaginal speculum was found in the Pompei's ruis(70AD)from ancient Rome. These instances clearly demonstrate the interest of our ancestors to look inside the internal organ since olden days.(1)

The first half of 1980s saw the introduction of technology that helped in fuelling the growth of minimal access surgery to what is today. Kurt Semn, a german gynaecologist did the first laparoscopic appendicectomy during routine gynaecological procedure in 1983.(9)

Basic and advanced laparoscopic surgery is safe but not risk free. Complications tend to occur during the procedure and in the

post operative recovery period .Proper preoperative assessment and preparation must be focused on the inciting disease process and on the identification of potential sources of surgical complication.

GOVERNMENT RAJAJI HOSPITAL.MADURAI:

This renowned institution is well known for its academic and research activities has a very good infrastructure with laparoscopic equipments in various speciality departments like General surgery, Obstetrics & Gynaecology, Surgical gastroenterology and Paediatric surgery.

In the Department of General Surgery we operate about good number of cases every week by laparoscopic techniques. The department is manned by fully trained general surgeons and specialists who are doing ample number of cases every day.

AIM OF THE STUDY

1) To determine and describe the incidence of various peroperative and postoperative complications of laparoscopic surgeries done at GRH including

   a) General complications unique to laparoscopy,

   b) Specific procedure related complications and anaesthetic complications.

2) To analyse the association of various preoperative risk factors involved in this patients.

MATERIALS&METHODS

This study was conducted at Government Rajaji Hospital, Madurai from September 2010 to September 2012 .It includes data on complications of all patients who undergo laparoscopic surgeries in general surgery department.

Before surgery, an informed consent was obtained from patients with awareness of the risks and complications of laparascopic procedures and a possibility to switch to laparatomy. Age and sex, body mass index of the patient were recorded. Presence of risk factors such as obesity, previous surgeries, type of scar, hypertension, diabetes mellitus, coronary artery disease, COPD were also noted.

The experience of the surgeon in laparoscopy was also considered as the steep learning curve in laparoscopy also play a role in the incidence of complications.

STATISTICAL METHODS(5)

The information collected regarding all the selected cases were recorded in a master chart. Data analysis was done with the help of

computer using epidemiological information package (EPI 2010) developed by Centre of disease control, Atlanta.

Using this software lange, frequencies, percentages, means, standard deviation, chi square and 'p' values were calculated. Kruskul Wallis chi-square test was used to test the significance of difference between quantitative analysis and Yate's chi-square test for qualitative variables. A 'p' value less than 0.05 is taken to denote significant relationship.

Complicatons were classified in to two groups –peroperative and postoperative complications.

A Complication was defined as ‘an unexpected /unplanned event during the laparoscopic procedure which requires further treatment’. The detailed history and clinical courses of the complications were recorded.(2)

PREOPERATIVE WORKUP

A proper preoperative workup will minimize the intra and post operative complications. Pre operative preparations are similar to that of any general surgical patient. Evaluation of cardiac and respiratory systems is mandatory to ensure a safe operation .The cardiac system is significantly affected by laparoscopy due to the mechanical effects of

pneumoperitoneum ,hemodynamic effects of the absorbed Co2 and the volume shifts caused by patient's positioning .(12)

PREOPERATIVE CHECK LIST:

1.History and physical examination.

2.Evaluation of other medical problems.

3. Evaluation of cardiac and respiratory systems.

4.Normalisation of fluid and electrolytes.

5.Antibiotics.

6.Prophylaxis of Deep vein thrombosis.

7. Evaluation of genito urinary system.

8.Appropriate laboratory and radiologic studies.

9.Informed consent for laparotomy if necessity arises.

SELECTION OF PATIENTS FOR LAP. PROCEDURE:

Proper selection is very important to avoid complications on the table. Selection of patients for laparoscopy should be considered depending on the individual patient's risk and the disease process and the surgeon should also judge his expertise in dealing with them.(1)

CONTRAINDICATION TO LAPAROSCOPY:

There are certain risk factors that make the patient absolutely or relatively contraindicated for laparoscopy. This contraindications tend to change over time but an understanding of when laparoscopy is not indicated or presents greater risk is of utmost importance. (1)

Trauma cases with hypovolemic shock along with massive acute bleeding that may obscure the view making it difficult to precisely localize the source of bleeding constitutes a contraindication as it requires quicker intervention than laparoscopy will permit.

Severe cardiac disease may also be an absolute contraindication if insufflations and patient positioning will exacerbate the underlying condition.

Most other contraindications can be considered relative and the extend to each of these conditions precludes laparoscopic surgery may change overtime .With the development of new techniques and advanced instrumentations, pregnancy was once thought to be an absolute contraindication to laparoscopy ,but laparoscopic surgery has been shown to be safe and effective well into second trimester.

Peritonitis, especially of uncertain origin usually requires a formal exploration, but laparoscopy may assist in identifying the inciting event and direct the placement of the surgical incision.

Abdominal wall hernias, particularly those previously repaired with mesh will complicate laparoscopic surgery and may lower safety threshold.

Diaphragmatic hernias may preclude adequate insufflations and should be considered by the surgeon and anaesthesiologist when deciding on the surgical approach.

Uncorrected coagulopathies may be a relative contraindication and portal hypertension may lead to increased abdominal wall bleeding and complications.(12)

Absolute:

1.Hypovolemic shock.

2.Massive bleeding, hemodynamic instability.

3.Severe cardiac disease.

Relative :

1.Peritonitis of uncertain origin.

2.Abdominal wall hernias.

3.Diaphragmatic hernia.

4.Uncorrected coagulopathies.

5.Cirrhosis of liver.

6.Portal hypertension.

7.Multiple previous surgical procedure.

8.Late stage pregnancies.

Multiple prior abdominal operations with significant intra abdominal adhesions will severely impair visualisation and increase the risk of intestinal injury. With careful technique ,including an open placement of initial trocars ,the risk can be minimized.(1)

Meticulous dissection while taking down abdominal wall adhesions, feeling of intra-loop intestinal bands and scrupulous identification of important landmarks will convert a difficult, dangerous procedure into straight forward case.

Preoperative bowel preparation may be important in decreasing the hazards.

COMPLICATIONS OF LAPAROSCOPY:

Laparoscopic complications can be divided into general complications of laparoscopy both peroperative and post operative and complications specific to the procedure itself.

General complications include those that may occur in any laparoscopic procedure and compromises complications of anaesthesia, pneumoperitoneum, abdominal insufflations, patient position, access related and instrumentation related complications.

(I) GENERAL COMPLICATIONS:

1.**ANAESTHESIA RELATED**;

The complication rate of anaesthesia for laparoscopic procedures is approximately 0.05%(1).Most laparoscopic surgeries are performed under general endotracheal anaesthesia. The following factors make anaesthesia for laparoscopy a high risk procedure;

(a) **EFFECTS OF PNEUMOPERITONEUM;**

Co2 is most common gas used for pneumoperitoneum.

The prime effect of co2 is increased in paco2 due to absorption from peritoneal surface,V/Q mismatch ,increased metabolism, decreased ventilation.(1)

The increase in paco2 is directly proportional to the increase in Intraabdominal pressure-decrease in Functional residual capacity, Tidal volume and pulmonary compliance – responsible for V/Q mismatch.

The cephalad shift of carina due to pneumo peritoneum may result in endobronchial movement of endotracheal tube leading to hypoxia and hypercarbia.

(b) **EFFECT OF POSITION;**

Trendelenberg position causes decreased functional residual capacity and total lung volume leading to atelectasis which is more marked in obese ,elderly patient . The preferred position is reverse trendelenberg position. (15)

(c) **INFLUENCE OF ANAESTHESIA;**

General anaesthesia /spontaneous –may lead to respiratory depression due to increased Paco2..

(d)**HYPOTHERMIA;**

The reduction of 0.3°C in body temperature is noted for every 0.5L of gas insufflated .Hence to maintain body temperature ,heating mattress with forced air warming may be used. The insufflation gas and the infusion fluids and blood may be warmed.

(e) **HYPERCARBIA ;**

may cause sympathetic stimulation –causing tachycardia, hypertension, arrhythmias. The arrhythmias during laparoscopy are due to

(1)Stretching of peritoneum → increased vagal tone → bradycardia and arrhythmias may over lead to asystole.
(2)Light anaesthesia.

(3) Patients on beta-blockers.

(4) Intolerance of hemodynamic disturbances.

(5) Gas embolism- rare but dangerous due to small bubbles entering injured veins. Small bubbles are entrapped in the pulmonary circulation leading to V/Q mismatch. Rapid insufflation may produce “gas lock” in vena cava, right atrium leading to circulatory collapse. Clinically, tachycardia ,hypotension, hypoxia, ↑CVP, cardiac arrhythmias ,altered heart sounds(Metallic murmur ,Mill wheel murmur),ECG changes (left heart strain) may be evident. In capnometry,PCO2 changes are biphasic. Gas foamy blood aspirated from central line. Treated with release of pneumoperitoneum and stopping insufflation, steep head dome and left lateral (DURYANT’S POSITION) to avoid gas entering on flow tract,100% oxygen and hyperventilation.(13)

Increased intraabdominal pressure and hiatus hernia increases the risk of regurgitation and aspiration, this to some extent offset by functional changes produced by increased IAP. Head down position prevents aspiration.

(2**) ACCESS RELATED ;**

(a**) SUBCUTANEOUS EMPHYSEMA**: Improper placement of verre's trocar leads to subcutaneous emphysema. Spontaneous resolution occurs with in 30-60min after exsufflation. The position in the peritoneal cavity can be confirmed by following methods;(1)

1) A hissing sound of air entering the peritoneal cavity because of negative intraabdominal pressure.

2) Drops of saline placed at the tip of needle gets sucked into peritoneal cavity.

3) Spring test-A click is headed where the needle has entered to peritoneal cavity.

4) Aspiration test-Aspiration of turbid fluid indicates that the needle has entered the bowel.

5) The insufflation pressure should not exceed 3-5lit /min. If high, it indicates presence in abdominal wall.

(b**) BOWEL INJURIES**;

Bowel injuries most frequently involve the small intestine followed in frequently by colon, duodenum and stomach. These

injuries may be unrecognised at the time of surgeries and present with postoperative peritonitis .Bowel injury is associated with mortality of about 5%(13). Direct injuries can be caused by the verees needle (or) by operating trocars. This is particularly significant in patients with abdominal wall hernias (or) prior surgeries .Bowel perforation requires immediate repair of the injury either laparoscopically (or) by laparotomy . Minor perforations may not be immediately recognised and may present with delayed sepsis. Trocar injuries are preventable. Proper techniques and adequate care will prevent trocar injuries Carelessness and overconfidence can cause trocar injury.

(C**) VASCULAR INJURIES;**

Major vascular injury during laparoscopic surgery is rare and usually occurs during pelvic procedures. Most injuries are in the vicinity of the distal aorta and its branches of the Inferior vena cava (or) iliac vein. The aortic bifurcation was about 5cm and iliocaval confluence was about 3cm above anterior superior iliac spine in the midline. The aorto iliac bifurcation was also found to be about 8cm in depth from umbilicus. The inferior epigastric artery was always found to be less than 6cm from midline,(1) Therefore ,while placing accessory ports it is worthwhile placing then at least 6cm

away from midline. Early recognition of these complications is important for successful treatment. Verees needle entry into a major vessel can often be diagnosed by aspiration .If significant bleeding is seen after the insertion of trocar (or) if an expanding retroperitoneal hematoma is identified, immediate exploration is mandatory.

Most of the injuries can be repaired by direct suture ligation but a patch (or) synthetic graft may be required for more extensive damage

CONTROL OF TROCAR SITE BLEEDING;(1)

- Compression by the trocar.
- Temporarily with foley's catheter balloon.
- Coagulation using bipolar cautery.
- Suture ligation intra corporeally (or) extra corporeally.
  (using port closer needle)
- Laparotomy.

(d) BLADDER INJURY;

Laparoscopic injuries to the bladder may result from the verre's needle (or) insertion of lower abdominal trocar . The risk of bladder perforation increases with previous abdominal surgery, previous bladder surgery, (or) congenital anomalies(8) .The appearance of gas in the urobag (or) unexplained urinary tract bleeding, during (or) after the procedure should heighten the suspicion of an injury .Decompression of the bladder with a foley's catheter may help to reduce the risk of injury. Diagnosis of a urinary tract injury may be made with a retrograde cystogram, when this injury suspected.(9,10)

(3)PNEUMOPERITONEUM RELATED;

Complication related to the CO2 pneumoperitoneum may present intraoperatively (or) postoperatively. The mechanical effects of the intraperitoneal gas may cause vagal stimulation into brady arrhythmias, diminished venous return and alteration in blood pressure .

Pulmonary effects of the pneumoperitoneum include increased airway pressure, hypercarbia with acidosis that may persist after surgery is completed.

Pneumothorax, pneumomediastinum and pneumopericardium may occur due to (1)

(a) Improper placement of verees needle / trocar.

(b) Potential channels of communication between peritoneal and pleural sacs.

(c) Defect in the diaphragm.

(d) Pleural tear during surgery near OG junction.

Pulmonary bullae rupture pneumothroax can be treated with

(i) Adjustment of ventilation .

(ii) Positive end expiratory pressure (to be avoided in bullae rupture)

(iii) Intra abdominal pressure reduced .

Intercostal drainage may be delayed ;used only if mandatory.(2)

(4) INSTRUMENTATION RELATED:

(A) ELECTROSURGICAL INJURIES;

In laparoscopic surgery, electrosurgery is one of the most commonly used systems. The laparoscopic electro surgical injuries are more common when compared to conventional surgery as the manipulative skills for laparoscopy are slightly different with spatial orientation and hand eye coordination combined with lack of tactile feedback. It has been estimated that laparoscope allows the surgeon to view only 10% of the live electrode at one time and rest of the instrument is hidden from the vision .The incidence of electrosurgical injuries ranges from 2-5 per 1000.(1)

Apart from direct injury due to accidental application of the instrument on unnecessary time ,injury can also happen due to factors that are to large extent beyond surgeon's control due to stray electrical energy escaping from monopolar instruments.

Mechanism by which injury occurs are by (1)

(a) direct application.

(b) insulation failure.

(c) direct coupling.

(d) capacitive coupling device.

(e) alternate ground pad burns.

Electro surgical injuries can occur to any part of the body. Improper placement of the return electrodes may result in burns in the area of inadequate contact. The bowel injuries are most dangerous with small bowel are most common affected. Injuries may also occur in biliary system ,ureter and other viscera. These injuries can present as acute events (or) presents as late complications such as strictures in biliary tracts/ureters.

As these patients do not develop signs of classical peritonitis, a suspicion of this possibility should always be kept in mind. Surgical injuries recognised during procedure can be treated either laparoscopically. In cases of full thickness perforation, wide excision (5cm margin) to include area of coagulation necrosis guards against perforation. (1)

(B)SPECIMEN RETREIVAL;

One of the major advantages of laparoscopic surgery is small incision which must be balanced with the need to remove and

preserve specimens that may be large than the laparoscopic portsite. (1)

Specimens may be infected (or) malignant where improper removal may result in wound infection /deposits.

Several potential routes for removal of abdominal and pelvic specimens are (2)

(a) Port sites .

(b) Separate abdominal wall incision

(c) Trans anal(if colon resection performed).

(d) Trans vaginal.

(e) Hand port sites.

Ideally, specimen removal should be along the path of least resistance which produces least pain, prevents contamination and provides the best cosmesis. If specimen can not be removed immediately after resection, it must be secured in position for easy identification and later retreival. The complications related to removal of laparoscopic specimens are

(1) Internal specimens loss.

(2) Specimen rupture.

(3) Wound infection.

(4) Port site seeding.

(5) Visceral injury. (due to entrapment during extraction)

(6) Portsite hernias.

(C) **MECHANICAL CLIPS;**

Clipping is the simplest ,fastest and most precise way of laparoscopically tackling vascular, tubular structures. However, while providing simplicity and economy of time, it can be dealt with its own problems.

A titanium clip is far less secure than a tie (or) a suture and hence atleast two proximal clips are advocated. Clips are prone to slippage (or) leakage and bleeding can occur if (1)

1. Not applied perpendicular to the vessel.

2. Applied without proper skeletonizing the vessel.

3. Improper size clips are used and they do not go around the entire vessel (or) the clip is simply too big for vessel concerned.

4. The clips cross over one another.

5. Ends of the clip can make a rent in a vessel if it does not encircle the entire width of a vessel.

6. Clips should never be used to terminate a continuous suture line as these do not hold a suture well and can easily slip off. The best way to that is to lock the last throw and take another stitch end the suture line

Safe clips (or) Hem-o-lock clips are more secure than regular clips but more expensive.

(5) PATIENT POISITIONING;

Patient positioning on the operating table is critical to the success of laparoscopic procedures but has potential problems. The lithotomy position may cause femoral (or) peroneal neuropathy (or) contribute to an exacerbation of lower extremity ischemia. Over extension of arm can stretch the brachial plexus. In

trendelenberg's position, shoulder braces can impinge on brachial plexus.(18)

(6) POSTOPERATIVE COMPLICATIONS;

Apart from early postoperative complications such as pain, nausea, vomiting, hypercarbia, gastritis may occur due to aspiration. Shoulder pain may presents due to diaphragmatic irritation.

(a) DEEP VEIN THROMBOSIS AND EMBOLISM;

All surgical patients, particularly elderly and cardiac patients are at risk for development of DVT and this should be a major consideration in the planning of laparoscopic procedures.

Several factors increase the risk of DVT. Compression stockings in lower extremities increase the blood flow in the femoral veins and reduce the potential for stasis.

The most widely used agent is heparin. A single dose of 5000U preoperatively and continued every 12 hours till the patient is ambulant prevents the incidence of postoperative DVT by 80%.

All patients undergoing laparoscopic surgery should be considered moderate risk unless they are < 40years with no predisposing factors.(1)

(b) WOUND INFECTIONS; PORT SITE INFECTION;

Wound infections following laparoscopic procedures are rare. Wound abscesses, cellulites and necrotising fasciitis may occur particularly when the subcutaneous tissue is exposed to infected material such as inflamed appendix ,bladder. Judicious use of antibiotics will help to prevent these unusual complication.

Thorough rinsing of the instruments in normal saline should be done after removing instrument from glutaraldehyde solution to avoid chemical suppurative inflammation.

(c)PORT SITE HERNIAS;

These are rare complications caused by trocar site fascial defects. Larger defects of 10cm (or) more carry higher risk. Omentum (or) bowel may be trapped and present 3-5days postoperatively as a Richter's hernias.(11)

The incidence of portsite hernia is quite low about 0.05%(11).Trocar insertion at angle so that the fascial wound is not

at the centre of the incision decreases the risk of weakening of the abdominal wall. Closing the fascia with simple (or) figure of eight sutures also reduces the incidence of herniation and should be performed in all trocar sites 1cm (or) larger .

(d)PORT SITE METASTASIS;

Port site and drain site metastasis have been documented by some studies. The mechanism of this complication is not fully understood. Factors proposed as positive factors are tumours spillage from manipulation and instrumentation and chemical, metabolic, and immunologic changes occurring following CO2 insufflation (12).Some interventions to minimize this cause are trocar fixation, prevention of gas leaks and sudden loss of pneumoperitoneum.

Protective sheaths and adequate sized opening that allows specimen extraction without squeezing are important to minimize local implantation. Gasless laparoscopy may protect from systemic implantation.

(E)COMPLEX REGIONAL PAIN SYNDROME:

The term causalgia was first described Sweir Mitchell to refer intense burning neuralgic pain (or) part of the body that is also experiencing high degree of sensitivity to the slightest vibration (or) touch presently. The term ‘CRPS’ is used at present there is no consensus as to why causalgia occurs ,but soft tissue trauma (or) entrapment of a nerve is considered to be the main underlying cause. Although laparoscopic surgery causes less tissue damage than open counterpart,it is not totally free from tissue damage. Persistent pain in the umbilical port site after laparoscopic surgery is due to infection, endometriosis metastasis,CRPS, entrapment of bowel (or) omentum etc. [3]

CRPS is subdivided into CRPS I and CRPS II.CRPS I is diagnosed when there is no obvious nerve injury whereas CRPS II refer to cases with nerve injury .According to the international association for the study of pain ,the diagnostic criteria for CRPS are as follows[3]

1.The presence of an initiating noxious event (or) cause of immobilization.

2.Continous pain ,allodynia (or) hyperalgesia disproportionate to the inciting event.

3.Evidence of edema, changes of skin blood flow(or) abnormal submotor activity in the area of pain.

4.Exclusion of the existence of any condition that would otherwise account for the pain & dysfunction.

The pathophysiology is still controversial. Basically there is facilitated neurogenic inflammation, autonomic dysfunction and neuroplastic changes within nervous system. CRPS occurs hypothetically due to partial peripheral nerve injuries with distal degeneration of small diameter peripheral axons and inappropriate firing and neuro secretion by residual axons with denervation hypersensitivity[4]

In CRPS affected skin, immunofloresence and biopsy studies showed decrease in epidermal, sweat gland and vascular innervations, loss of vascular endothelial integrity and extraordinary vascular hypertrophy. Skin biopsy may also show polymorph and lymphocytic infiltration of small vessels lapelled as leucocytoclastic vasculitis by some patients[3]

Because exagerated soft tissue trauma and inflammatory response may underlie CRPS –I in some cases ,laparoscopic surgery is not immune to it, it involves injury at umbilical portsite.There are reports of causalgia after single venipuncture. Excess trauma at the portsite in

laparoscopic surgery can lead to CRPS. There is a surge in the interest of single –incision laparoscopic surgery [SILS] in recent years .There is a possibility that repeated exaceberated trauma in single - incision laparoscopic surgery may cause more pain in the immediate postoperative period (or) in long term like CRPS and is evidenced by a report on contusion of the infraumblical region after single incision cholecystectomy.[5]

Physicians use a variety of drugs to CRPS and sometimes nerve block and surgical intervention may be needed in some cases with limited involvement.

CRPs, although very rare, should be considered as a differential diagnosis when there is persisting unexplained portsite pain after laparoscopic surgery .This highlights hitherto unforeseen complication of laparoscopic surgeries. [3]

(II) PROCEDURE RELATED;

1) LAPAROSCOPIC CHOLECYSTECTOMY;

(a**) BILE DUCT INJURY:** The most feared complication of laparoscopic cholecystectomy is bile duct injury. Due to the tortous

axial blood supply of the extra hepatic biliary tree, injuries in this areas carries significant morbidity.

(b)VASCULAR INJURY; The right hepatic artery is at risk during laparoscopic cholecystectomy as it appears in the triangle of calot ‘s in 12% and may be therefore be mistaken for the cystic artery thus ligated.(8)

Bleeding encountered during laparoscopic cholecystectomy should be arrested by tamponade ,the isolation of bleeding vessel and precise application of clip (or)ligature placement .If these manueoveres are unsuccessful ,it needs conversion.

Risk factors for biliary injury during laparoscopic cholecystectomy include aberrant anatomy, adhesion, acute (or) chronic inflammation, haemorrhage and perhaps in experience of the surgeons.

Liver laceration during laparoscopic cholecystectomy are usually caused while performing one of these manuveres

1) Placing trocars .

2) Applying cephalad traction

3) dissecting gallbladder from its fossa.

The placement of trocar under direct vision can visually eliminate the first mechanism of injury. The second mechanism can be avoided simply by not applying excessive traction which tends to avulse the gallbladder off the liver.

STRASBERG CLASSIFICATION AND MANAGEMENT OF BILE DUCT INJURIES;

Type	**Management - Immediate**
A	Suture of the cystic duct or application of loop + Adequate Drainage Reduction of intrabiliary pressure by post operative ERCP/stenting (if needed)
B	Not often found during surgery
C	Accessory right hepatic duct or segmental hepatic duct Less than 3mm : Ligation of the both levels Greater than 5mm : Primary or Roux en Y Hepaticojejunostomy
D	Less than 50% of circumference : Primary repair with T Tube + Adequate drainage Avulsion of cystic duct : Primary repair with T Tube + Adequate drainage More than 50% of circumference, thermal Injury : Roux en Y

Hepaticojejunostomy

E Hepaticojejunostomy

LAPAROSCOPIC BILE DUCT INJURY AND MANAGEMENT

Type	**Management – Postoperative**
A	Drainage of collection + reduction of intrabiliary pressure by ERCP/stenting
B	Symptomatic patients: Hepaticojejunostomy, Segmental hepatic resection, if anastomosis not possible (only for recurrent cholangitis not manageable conservatively) Asymptomatic: Diagnosed after long duration : No treatment is required Recently diagnosed, drains a large portion of liver: Bypass procedures
C	Drainage of collection ± biliary enteric anastomosis Resection of the liver, if the drainage segment is small
D	ERCP + Stent as initial treatment (usually resolves) No recovery : Same as immediate management
E	Due to strictures, clip occlusion : Balloon dilation, Stents Hepaticojejunostomy for patients not responding to nonoperative treatment or ductal separation.

(c) BOWEL INJURY: Injury to alimentary tract can occur during trocar insertion (or) dissection .The jejunum, ileum and colon are susceptible to veeres needle where as duodenum is more likely to injure while calot's triangle dissection .The rate of bowel injury is between0 -0.4% in reported series(19). The mechanism of bowel injury is thermal (or) mechanical .Thermal injury in particular may go unnoticed until several days following surgery.

(d)PERFORATION AND DROPPED STONES; During mobilisation of the gallbladder from the liver and again durig extraction ,there is a risk of perforation of the gallbladder with possibility of stone spillage and torn gallbladder. Perforation is common occurring in 10-40% of laparoscopic cholecystectomy. Stone spillage occur in 5-7%(1)

Risk factors include acute cholecystitis, previous laparatomy, and gallbladder hydrops. Preventing gallbladder perforation and stone loss is accomplished by dissecting with proper counter traction and minimizing damage once a perforation occurred .When bile is first noted escaping ,the wall should be repaired with a prepared loop tie ,clips (or) sutures.

Spilled stones should be removed with stone forceps (or) placed in an endoscopic specimen bag .

Copious irrigation of the sub hepatic and subphrenic areas should follow. Perforation occurring during extraction should be prevented by enlarging the fascial incision.

(E)PORT SITE METASTASIS; Gall bladder carcinoma is rare but unforgiving tumour that can be disseminated to laparoscopic portsites and peritoneal surfaces by unclear mechanism if it is a lesion of adequate thickness (or) if gallbladder is perforated. The use of nonporous specimen bag may decrease the incidence, recently, the irrigation of portsites with 5FU,saline, betadine etc has been demonstrated to increase the incidence.

(**F)DIAPHRAGMATIC INJURY;** The diaphragm may either burned by cautery (or)injured with the sucker (during irrigation) (or) grasper (while retracting cephaladly) ,so far only two cases has been reported(1).The recommendation is that the diaphragm should be inspected before closing, an angled laparoscope will facilitate this manuver.

2) LAPAROSCOPIC APPENDICECTOMY;

A**) HAEMORRHAGE:** Apart from general, bleeding may occur from an injury to the appendiceal artery.

B) WOUND INFECTION may occur in cases of appendicular abscess and perforated appendicitis .It can be avoided by using bag for extracting appendix .Bowel obstruction may occur by a staple or the mechanical suture on the caecum, hooked to bowel mesentry. It can be solved by simple laparoscopic lysis if an early diagnosis is made and operated .

C) INTRAABDOMINAL ABCESS: Patients with advanced acute appendicitis like gangrenous and perforated has the high risk for intra abdominal abscess. It may get settled with antibiotics and USG guided aspiration. It is possible to reduce the incidence of intra abdominal abscess if the sigmoid colon is retracted ,the patient placed in trendelendberg and the pelvis is completely irrigated and aspirated under direct vision.

D) BOWEL INJURY: To prevent iatrogenic bowel injury ,use bowel holding forceps avoid excess use of cautery on (or) near the stump.

E) DOUGLAS SYNDROME; Few patients complaints of pain and have tenderness over site of appendicectomy with in week of surgery .There is no abnormality as such proved by USG and CT. These patients respond to antibiotics and analgesics.

It may be due to long stump with persistent inflammation, the necrosis of which may be the cause of pain. It is advocated that a distance of <0.5cm should be maintained between ligatures and stump size should not be >0.5cm.(1)

3) LAPAROSCOPIC HERNIOPLASTY;

A) HAEMORRHAGE: Haemorrhage may occur due to injury to inferior epigastric veins. It can be prevented by transilluminating the anterior abdominal wall at the time trocar insertions.

Injury to testicular vein, iliac vessels may occur during dissection of sac and parietalization.Testicular vessels may be separated from lateral side and vas from medial side. Bleeding from testicular vessels can be controlled by bipolar coagulation (or) by clipping .But that from external iliac vein warrants conversion.

B) BOWEL INJURY: Injury to bowel/ omentum may occur due to reduction of contents .Obstruction is usually at the superficial ring. A lateral incision on the ring helps reduction.Stubborn omentum can be divided by harmonic scalpel /bipolar.

C) BLADDER INJURY: Injury to urinary bladder and tearing of peritoneum may occur during raising of flaps .This may be prevented by preoperatively by catheterising the bladder. Peritoneum is incised by diathermy scissors about 3cm above the superior margin of deep ring and flap is raised with diathermy / ultrasonic dissector.

D) **NERVE INJURY** : Injury to obturator vessels and nerve may occur during medial fossa/ cave of Retzius dissection. Injury to genito femoral and lateral femoral cutaneous nerve may occur during lateral fossa dissection (space of Bogros.) It can be avoided

1. By remaining strictly in the loose areolar plane.

2. Leave loose areolar tissue layer on the nerve and psoas muscle while lifting the inferior flap.

3. avoiding indiscriminate diathermy near the nerves (nerve lie below the iliac pubic tract)

E) **MESH MIGRATION AND INFECTION;**

Improper fixation may cause mesh migration .Measures to prevent are by

1) Mesh should cover entire myopectineal orifice

2) Centre of the mesh at centre of the defect.

3) Medial end to cross the midline

4) First fixation at the Cooper"s ligament(os pubis)

5) Other fixation at the conjoined tendon at superolateral angle

of the mesh.

6) Mesh with larger pores render better fixation by suture.

7) Avoid suturing of cord structures .

F) BLEEDING FROM TACKER SITE ;

No fixation in the triangle of dome / triangle of pain.

No tacker on infero lateral angle of mesh.

G) **RECURRENCE;**

Inadequate parietalization causes mesh rolling leading on to recurrence.

1) Avoid needle prick in to the mesh .

2) Avoid protrusion of mesh through suture to prevent intestinal fistulas.

4) LAPAROSCOPIC ABDOMINOPERINEAL RESECTION;

There are few unique problem specific to laparoscopic colorectal procedures.(1)

(1) **Multi quadrant organ** ; Unlike other organ ,colon is situated in more than 2-3 quadrant .It need to shift the camera from one port to another .Visualisation of colon at unfamiliar angles,handling of bulky tissue with unfamiliar tools and attempt to retract the large bowel at varied angle with confined space are some of the other difficulties.

2**) Multiple blood vessels**; Blood supply of the colon involves multiple vessels. The mesenteric blood vessels are numerous, large seen in a layer of opaque fat. Endovascular staples ,pre tied vessel loops are helpful. Ultrasonic dissection helps in avascular dissection.(14)

3) Retraction of colon needs some special instruments like bowel holding forceps, endo babcock.Gravity may also used be used as second assistants tilting the table.

4) Difficulties in identifying the site of lesion due to lack of tactile feedback .The introduction of hand assisted techniques and

colonoscopic making of tumour by metal clip placement and tattooing with methylene blue and Indian ink helps to over come this problem to certain degree.

5) **Specimen retrieval / Port site metastasis;** some studies suggest that tumour growth was proportional to the insufflation pressure. So keeping low insufflation pressure decreases the rate of dissemination. Other measures to prevent metastasis are;

1) Wound protectors.

2) Trocar fixation.

3) No touch technique .

4) Bowel washout.

5) Injury to ureter and bladder.

5) LAPAROSCOPIC VENTRAL HERNIA REPAIR;

As most of the patients are obese and elderly **, DVT** prophylaxis is important.

A) BOWEL INJURY: Bowel injuries due to previous adhesion may be prevented by

1) Keeping well away from hernia site.

2) Primary trocar by open /visiport technique.

3) Use Palmar point entry for umbilical,infra umbilical hernias.

Enterotomy may occur during primary trocar placement (or) on adhesion release.

1) While reducing content do not hold bowel and pull.

2) Use sharp dissection without cautery.

3) When adhesions consists of tissue in growth –excise the mesh and do not try to release adhesions

B) SEROMA: Seromas occurs because of redundant sac and non-approximation of the defect .This can be prevented

1) By approximating the defect with interrupted /continuous suture.

2) Making a nick in sac that expresses air out at the end of procedure.

3) Use abdominal binder.

C) **MESH COMPLICATIONS;** It can be prevented by

1) Sterilization of laparoscopic instruments.

2) Roll mesh well and load into metal cannula and deliver by reverse method .

3) Avoid holding (or) manipulating mesh using toothed instruments

4) Place mesh in correct position by scope in midline. If scope is in lateral position mark markings on mesh to indicate correct position corresponding to skin markings.

5) Use antibiotic impregnated mesh.

6) Use of composite mesh.

7) Trans abdominal fixation with additional tackers will prevent mesh migration .

8) Mesh migration is prevented to some extent by using biocompatible / light weight mesh.

D)NEURALGIA: Neuralgia can be prevented by placing transfascial sutures in transversalis fascia .It can be treated with NSAID (or) nerve blocking after localizing the root involved.

E)NON-HEALING SINUS: Use of non-absorbable suture material while applying trans-fascial sutures may result in sinus in some cases. So, either absorbable or delayed absorbable sutures are preferred.

F) RECURRENCE ; It is dreaded complication for patients with ventral hernia, prevention is

1) By proper selection of patients.

2) Approximate the defect properly.

3) Use adequate size dual mesh extending at least 3cm beyond defect .

4) Fix mesh

5) Remember that mesh shrinks by 30% in long run.

6) After applying trans-fascial sutures, tackers should be fixed 1cm beside the edge due to the risk of mesh giving away when it shrinks.

6) LAPAROSCOPIC ADHESIOLYSIS;

(1) ACCESS PROBLEMS: Safe establishment of pneumoperitoneum in patients with previous history of abdominal surgery is difficult.

Port should be made inPalmer's point and in other areas distant from the previous scar

Incidence of internal injuries during creating of pneumo peritoneum is (13)

1) Closed method 0.06-0.4%

2) Open method 0.09%

Other methods employed are ;

1) Using optiview trocar so that layer by layer entry into the abdomen under vision allows the primary port into the abdomen.

2) Radially dilating trocars

3) Semm's technique: based on principle that areas of adhesions can be detected by strong reflection of light of peritoneum while areas free from adhesions appear relatively translucent allowing the trocar to pierce through its wedge shaped tip.

COLOGNE had classified the complications of laparoscopic adhesiolysis as(1,24)

Class I – None

Class II - Enterotomy

Class III –Abdominal wall hematoma

Class IV – Small bowel lesion

Omental hematoma leading to conversion.

Acute abdomen.

Class V –Mortality.

This complications can be prevented by

1) Proper triangulation of trocars and two hand technique should be used for proper traction and counter traction.

2) Use of ultrasonic / harmonic scalpel rather than cautery.

3) Use of sharp dissector in avascular plane rather than blunt dissection.

4) If bowel are closely adherent to the parietal wall, retroperitoneal technique should be used for separation.

5) The study of mueller showed that not all the adhesions are responsible for pain in the abdomen. Bowel adhesions not causing obstruction are not released .

Large veins with lower venous pressure may get tamponaded by positive intra abdominal pressure due to pneumoperitoneum, hence pelvis should be examined while deflating the abdomen as large vessels may start bleeding again.

RECOMMENDATIONS;

The recognition of complication of access during laparoscopic surgery requires a meticulous protocol and should be observed irrespective of the method that is used.

At the initial trocar insertion, the surgeon should ensure that all vital structures are viewed before the actual procedure. Once the primary trocar is inserted, prior to the connection of the CO2 tube, the surgeon should introduce the laparoscope and visualise the areas likely to be injured.

The more rapidly the abdomen is insufflated, the greater effect will be on the cardiovascular system. This is potentiated by the reverse Trendelenberg's position and actual pressure on the working space.

The surgeon should perform a careful inspection of the peritoneal cavity not only at the commencement of surgery but also at its conclusion and inspect to look for bowel and the anterior abdominal wall at the primary site of trocar insertion. In cases where repair of bowel or control of bleeding a drain is placed that can give early warning of the postoperative complications.

Monopolar cautery is a safe, economical, efficacious and has been main stay of surgery. A complete and thorough knowledge of biophysics of electro cautery is necessary.

1) It is important to choose proper current wave from proper mode.

2) Improvement of dexterity and hand –eye coordination by training.

3) Avoiding activation of the electrode when the tip of the instrument is not in the field of vision.

4) Avoiding hybrid trocar sleeves.

5) Use of electrosurgical accessory safety equipments like return and active electrode monitoring systems to detect the stray currents, newer design generator, smoke evacuation systems to improve visualisation.

Recently, a concept of active electrode monitoring like audible alarm has been introduced. The lack of direct touch and depth perception compounded by the limited space make manuevering extremely difficult in laparoscopic surgeries.

In order to surmount these difficulties , the surgeon has to keep himself mentally and physically fit in addition to adhering to

strict principles enunciated above. With practice ,the steep learning curve can be surmounted .The surgeon should preserve as the immense benefits to the patients make all these efforts worthwhile.

RESULTS OF THE STUDY

Total number of patients registered during the two year period was 287 patients. Age of the patients included in the study ranges from 13-70 years. Mean age of the patient was 35.5

Complications has been divided into two categories: peroperative and post-operative complications.

Peroperative complication has been divided into

a) Anaesthetic complication

b) Complication unique to laparoscopy

c) Specific procedure related complications

In peroperative complication, I have observed 9 cases of hypertension, 7 cases of tachycardia during anaesthetics. While doing laparoscopic procedures, 4 cases of subcutaneous emphysema, 2 cases of vascular injury (inferior epigastric artery), one retractor injury and one indirect electrosurgical injury happened.

Out of 287 surgical procedures,121cases of laparoscopic appendicectomy accounted for major proportion. Next was 57cases of laparoscopic cholecystectomy.

While doing laparoscopic appendicectomy one case of enterocutaneous fistula, stump appendicitis, and caecal injury happened out of 121cases .

Out of 57 cases,4cases of gallstone spillage,one case of bile duct injury,bile duct leak,and pacreatitis were observed while doing laparoscopic cholecystectomy.

I have registered 20cases of laparoscopy herniorapphy in my study period. Out of 20cases, 2cases of bleeding from tackersite, one case of seroma were observed.

I have observed 7 cases of Abdomino perineal resection (APR) in my period, out of 7cases, so far nosignificant complications had developed.

I have included umbilical hernias, para umbilical hernias, and Incisional hernias in laparoscopic ventral hernia repair procedure.out of 15cases of laparoscopic ventral hernia repair ,5cases of adhesion, one case of seroma and recurrence were observed.

Diagnostic laparoscopy was performed in case of mesenteric adenitis, adhesive pain, and carcinomas to assess operability .We have

performed 7 cases of laparoscopic adhesiolysis. Out of 7cases only one omental injury was observed.

I have included laparoscopic varicocelectomy, laparoscopic oopherectomy, omental biopsy, diagnostic procedures in other procedures.43 cases were observed in my study period. So far no significant complications were observed in out of 43 cases.

After analysis of complications versus procedures,no procedures significantly associated with complications.

I have analysed risk factors were associated with above individual laparoscopic procedures.I have included obesity(BMI>30) ,H/O previous surgery , hypertension, diabetes, coronary artery disease, COPD, and surgical experience (<4years) as risk factors in the above procedures.

In risk factors analysis, obesity (BMI>30) was associated with 4 cases of laparoscopic ventral hernia repair ,H/O of previous surgery was present in 5cases of laparoscopic ventral hernia repair, out of 16cases.Finally we observed laparoscopic ventral hernia had more risk factors than overall procedures.

After analysis of risk factors versus age groups, risk factors were more in >40years age groups. Here p value (0.0001) was significant in our study.

In analysis of risk factors versus sex, risk factors more common in female age groups, Here also p value(0.0309) was more significant.

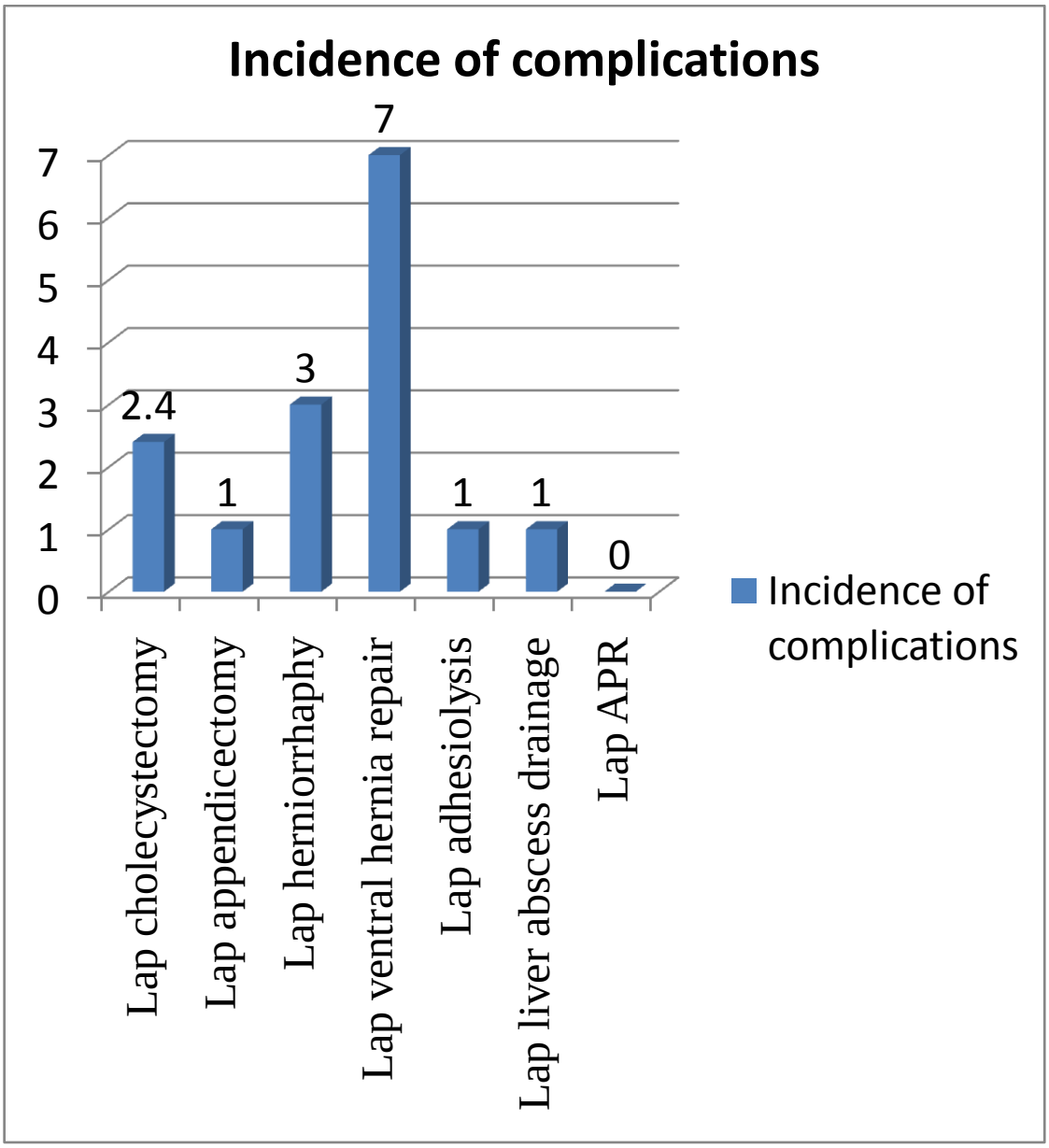
After analysis of risk factors versus complications ,complications were more associated with the presence of risk factors .In analysis of individual risk factors with complications, H/O previous surgery (p value <0.0386),diabetes(p value <0.0167), surgeon's exposure <4yrs (p value <0.0001) had significant association with complications .Other risk factors like obesity ,hypertension were not significantly associated with complications.

In postoperative complications analysis, I have observed one case deep vein thrombosis and 2 cases of embolism present in laparoscopic cholecystectomy.

2 cases port site hernias ,one case of port site infection due to atypical mycobacteria were observed in laparoscopy appendicectomy procedure.

2 cases of complex regional pain syndrome (CRPS), 3cases shoulder pain, 4 cases of gastritis, nausea, vomiting ,and pain, complications were observed non specifically to above procedures.

The two cases of Complex regional pain syndrome were treated by analgesics and anti-anxiety drugs.



RESULTS

A : PROFILE OF CASES STUDIED

Table 1 : AGE DISTRIBUTION

Age group	Cases	
	No	%
Upto 20 years	45	15.7
Upto 21-30 years	79	27.5
Upto 31-40 years	58	20.2
Upto 41-50 years	62	21.6
> 50 years	43	15.0
Total	287	100
Range	13-70 years	
Mean	35.5 years	
S.D	13.4 years	

AGE DISTRIBUTION

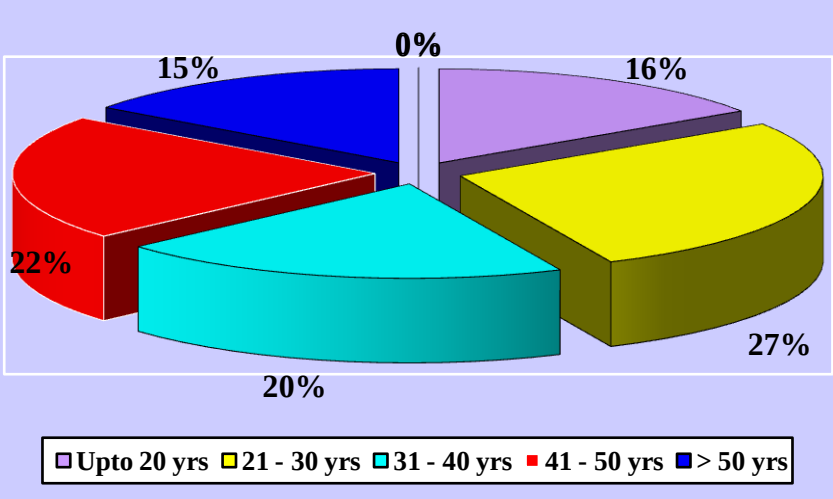


Table 2 : SEX DISTRIBUTION

Sex	Cases	
	No	%
Male	147	51.2
Female	140	48.8
Total	287	100

SEX DISTRIBUTION

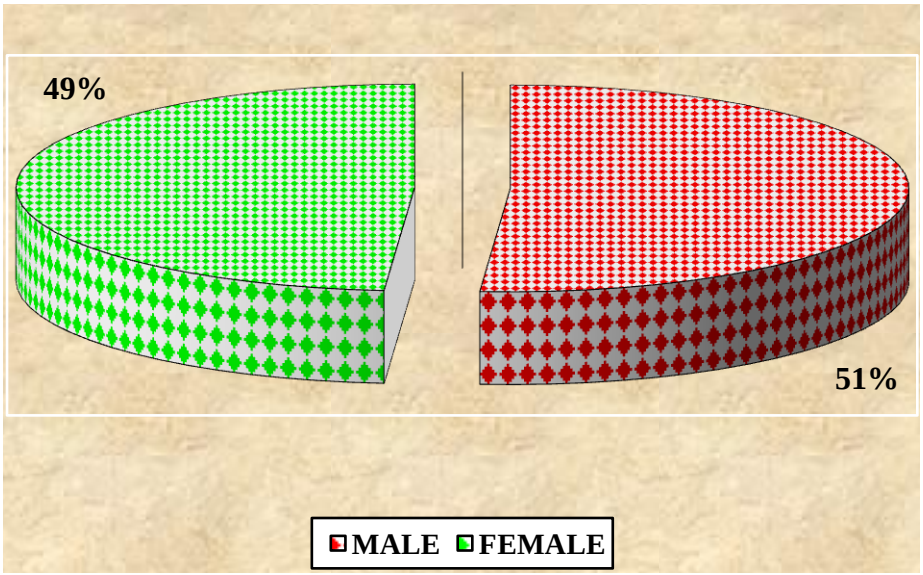


Table 3 : PROCEDURES DONE

Procedures done	Cases	
	No	%
1. Lap cholecystectomy	57	19.9
2. Lap. Appendicectomy	121	42.2
3. Lap. Herniorapphy	20	7.0
4. Lap. APR	7	2.4
5. Lap.VentraHernial repair	16	5.6
6. Lap. Adhesiolysis	7	2.4
7Lap.Liverabscess drainage	16	5.6
8. Others	43	15.0
Total	287	100

PROCEDURES DONE

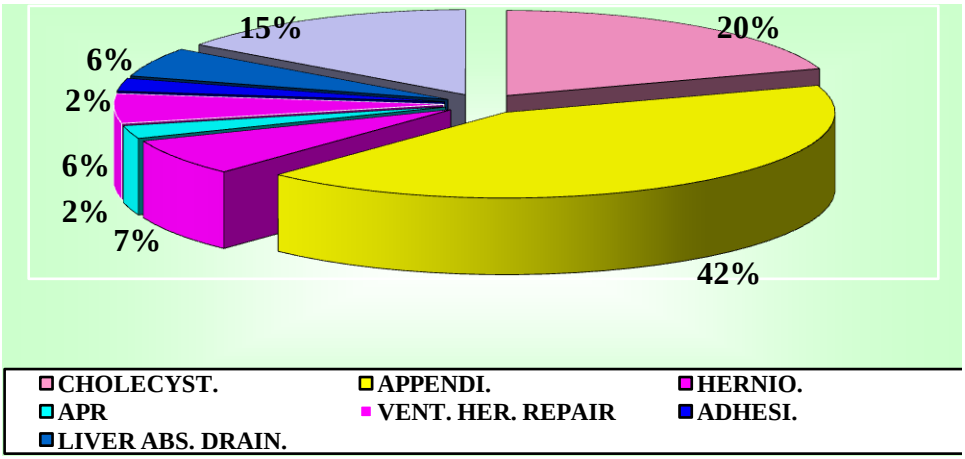
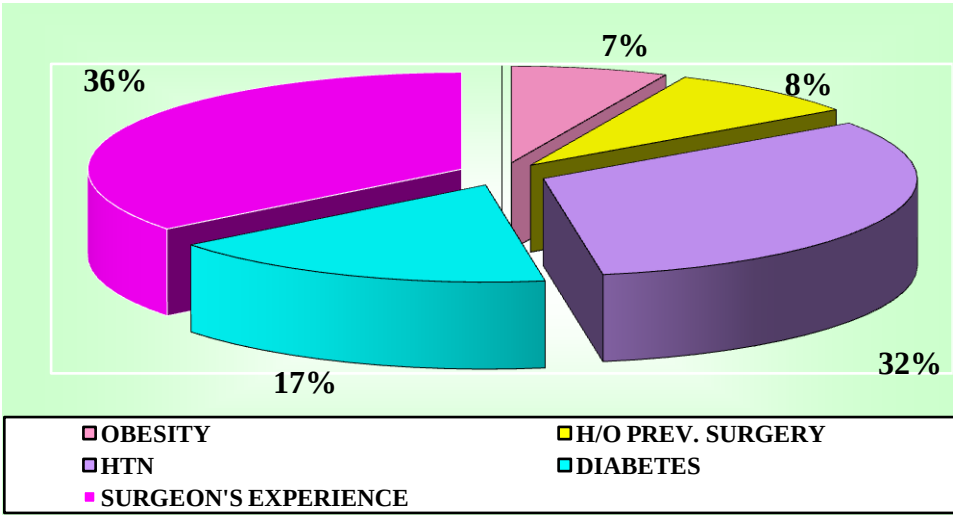


Table 4 : RISK FACTORS

Risk factors	Cases	
	No	%
Obesity	4	1.4
H/o Previous surgery	5	1.7
Hypertension	19	6.6
Diabetes	10	3.5
Coronary Artery Disease	Nil	Nil
COPD	Nil	Nil
Surgeon's experience (<4years)	21	7.3
Total	43*	15.0

*Some cases had more than one risk factors.

RISK FACTORS



	No	%
A. Per operative complications		
1. Anaesthesia related	**9**	**3.1**
2. Unique to laparoscopy a) Access related	6	2.1
b) Pneumo Peritonium related	-	-
c) Instrumentation related	6	2.1
d) Unique to laparoscopy Total	**11***	**3.8**
3) Procedure related a) Lap. Cholecystectomy	7	2.4
b) Lap. Appendicectomy	3	1.0
c) Lap. Hernioraphy	3	1.0
d) Lap. APR	-	-
e) Lap. Ventral Hernia repair	7	2.4
f) Lap. Adhesiolysis	1	0.3
g) Lap. Liver abscess drainage	1	0.3
h) Procedure related Total	**21***	**7.3**
B) Post operative complications	**13**	**4.5**
Total complications	**50***	**17.4**

*Some cases had more than one complication.

COMPLICATIONS

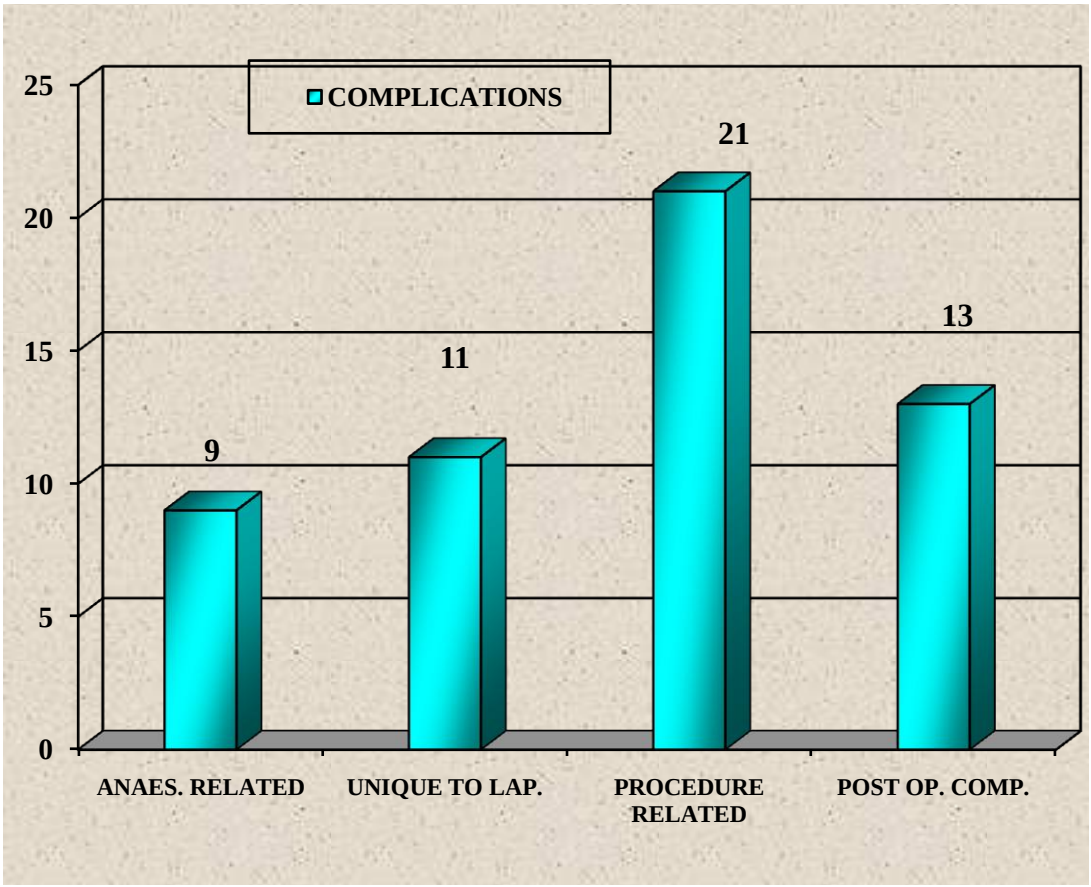


Table 6 : PROCEDURE DONE AND RISK FACTORS

Procedure done	No.of cases	Risk factors			
		Present		Absent	
		No	%	No	%
Lap. Cholecystectomy	57	13	22.8	44	77.2
Lap. Appendicectomy	121	7	5.8	114	94.2
Lap. Herniorapphy	20	3	15	17	85
Lap. APR	7	-	-	7	100
Lap. Ventral Hernial repair		10	62.5	6	37.5
Lap. Adhesiolysis	7	1	14.3	6	85.7
Lap. Liver Abscess Drainage	16	4	25	12	75
Others	43	5	11.6	38	88.4
Total	287	43	15	244	85

Table 7 : RELATIONSHIP BETWEEN AGE AND RISK FACTORS

Age group	No.of cases	Risk factors			
		Present		Absent	
		No	%	No	%
Upto 20 years	45	-	-	45	100
Upto 21-30 years	79	7	8.9	72	91.1
Upto 31-40 years	58	2	3.4	56	96.6
Upto 41-50 years	62	22	35.3	40	64.5
> 50 years	43	12	27.9	31	72.1
Mean age	44.4 years			33.9 years	
SD	10.1 years			13.3 years	
'p'	**0.0001** **Significant**				

RISK FACTOR & MEAN AGE

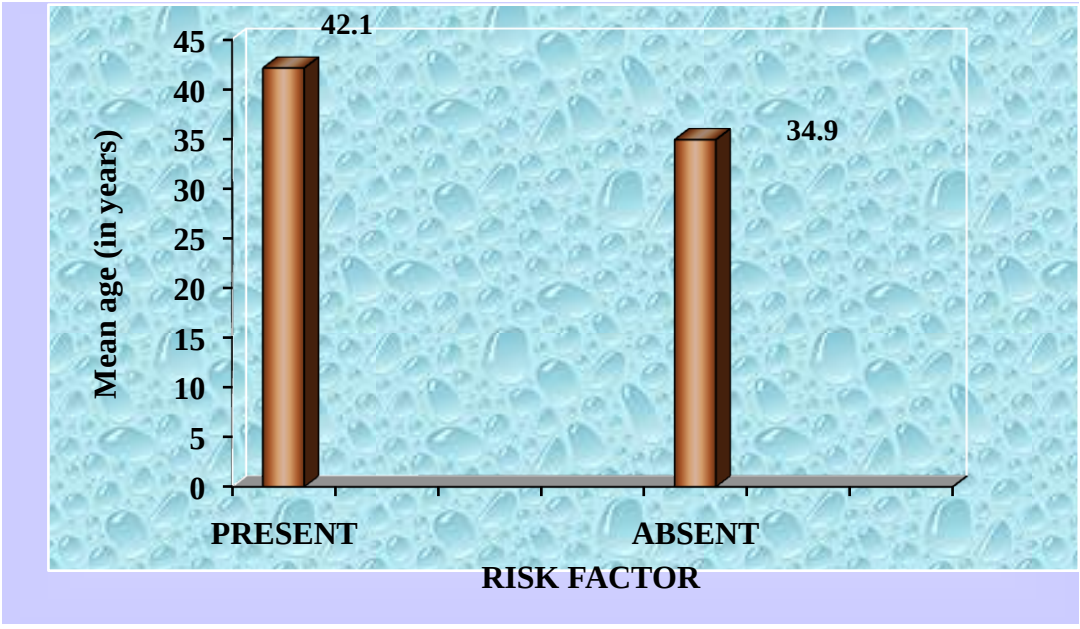


Table 8 : SEX AND RISK FACTOR

Sex	No.of cases	Risk factors			
		Present		Absent	
		No	%	No	%
Male	147	15	10.2	132	89.8
Female	140	28	20	112	80
‘p’	0.0309 Significant				

SEX & RISK FACTOR

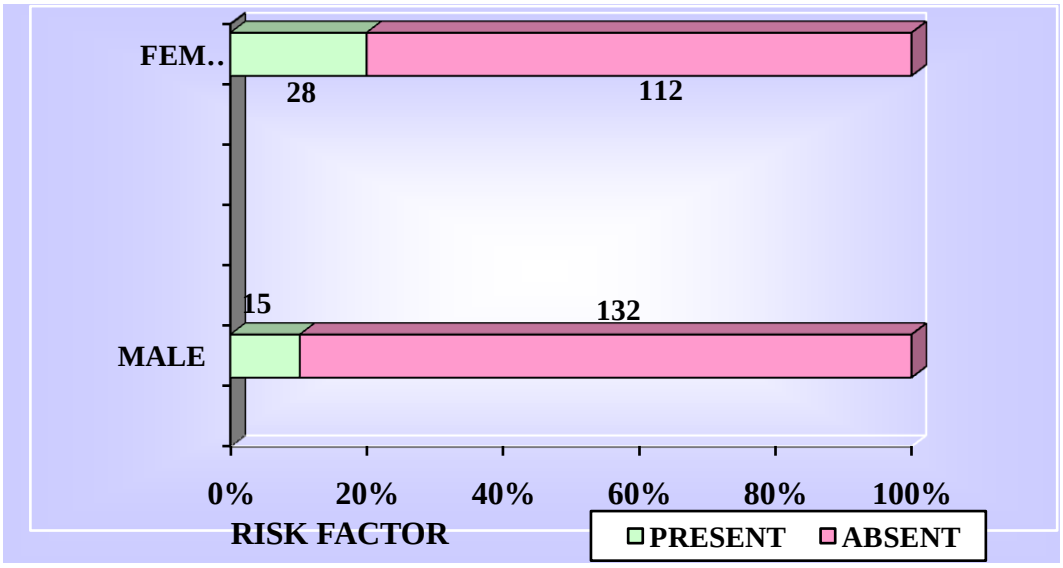


Table 9 : AGE AND COMPLICATIONS

Age group	Total cases	Complications			
		Present		Absent	
		No	%	No	%
Upto 20 years	45	8	17.8	37	82.2
21-30 years	79	15	19	64	81
31-40 years	58	9	15.5	49	84.5
41-50 years	62	7	11.3	55	88.7
> 50 years	43	11	25.6	32	74.4
Mean age	36.0 years			35.4 years	
SD	14.1 years			13.3 years	
'p'	0.8066 Not significant				

Table 10 : SEX AND COMPLICATIONS

Age group	No.of cases	Risk factors			
		Present		Absent	
		No	%	No	%
Male	147	28	19	119	81
Female	140	22	15.7	118	84.3
'p'	0.5562 Not significant				

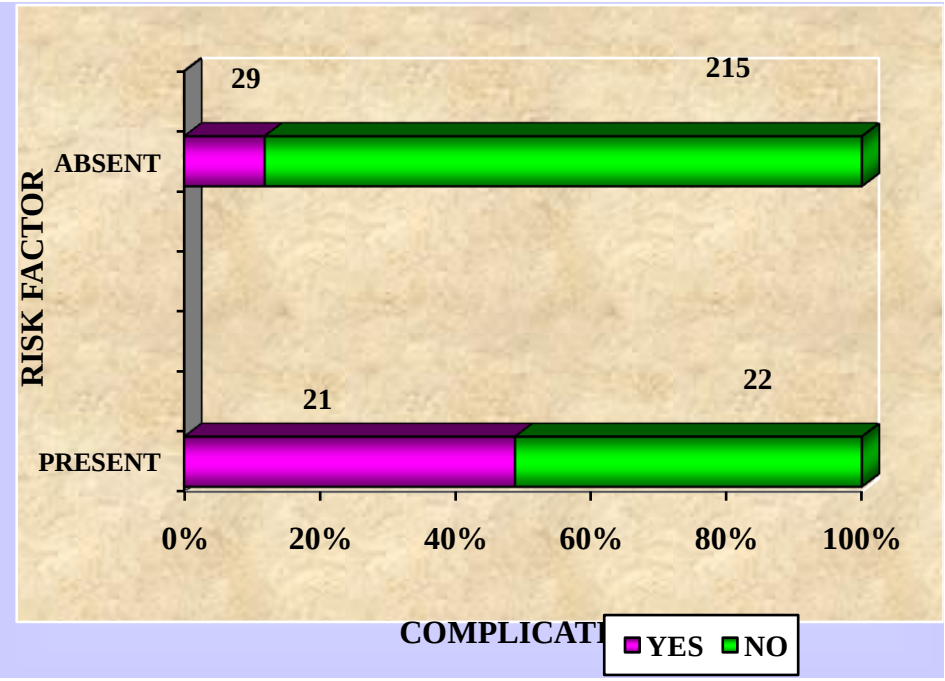
Table 11 : PROCEDURE DONE AND COMPLICATIONS

Procedure done	**No.of cases**	**Complications**			
		Present		**Absent**	
		No	**%**	**No**	**%**
Lap. Cholecystectomy	57	15	26.3	42	73.7
Lap. Appendicectomy	121	13	10.7	108	89.3
Lap. Herniorapphy	20	5	25	15	75
Lap. APR	7	2	28.6	5	71.4
Lap. Ventral Hernial repair	16	6	37.5	10	62.5
Lap. Adhesiolysis	7	2	28.6	5	71.4
Lap. Liver Abscess Drainage	16	3	18.8	13	81.3
Others	43	4	9.3	39	90.7
Total	287	50	17.4	237	82.6

Table 12 : PRESENCE OF RISK FACTORS AND COMPLICATIONS

Risk factor	No.of cases	Complications			
		Yes		No	
		No	%	No	%
Present	43	21	48.8	22	51.2
Absent	244	29	11.9	215	88.1
'p'		0.0001 Significant			

RISK FACTOR & COMPLICATIONS



RELATIONSHIP BETWEEN RISK FACTOR AND COMPLICATION

Table 13 : Obesity and complications

Obesity	No.of cases	Complications			
		Present		Absent	
		No	%	No	%
Yes	4	2	50	2	50
No	283	48	17	235	83
'p'	0.1414 Not significant				

Table 14 : HISTORY OF PREVIOUS SURGERY AND COMPLICATIONS

History of previous surgery	No.of cases	Complications			
		Present		Absent	
		No	%	No	%
Yes	5	3	60	2	40
No	282	47	16.7	235	83.3
'p'	0.0386 Significant				

H/O PREVIOUS SURGERY & COMPLICATIONS

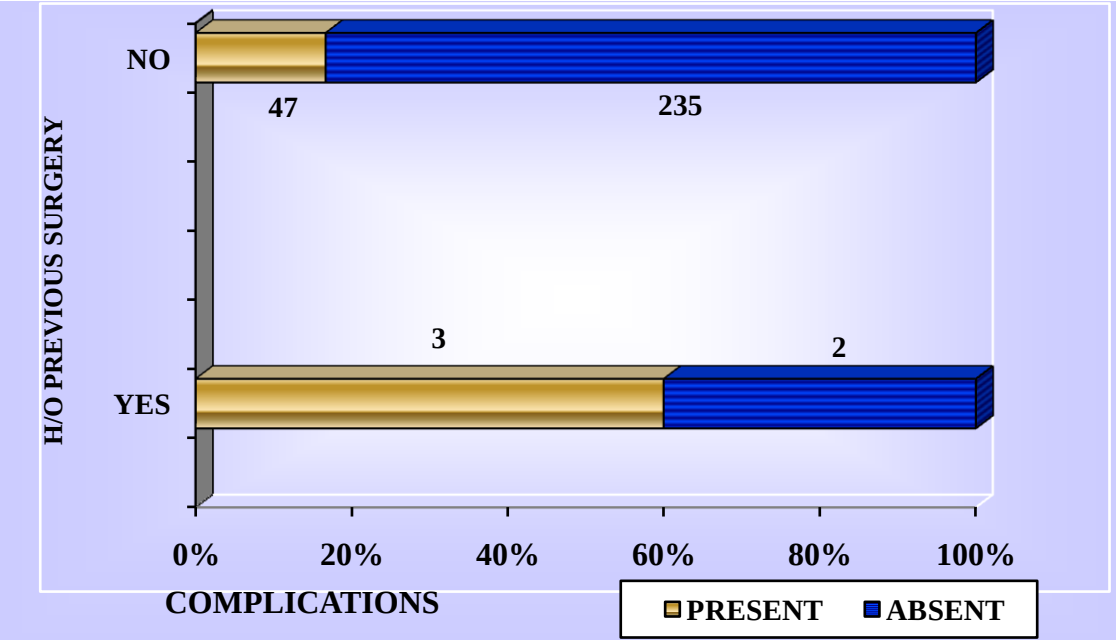


Table 15 : HYPERTENSION AND COMPLICATIONS

Hypertension	No.of cases	Complications			
		Present		Absent	
		No	%	No	%
Yes	19	4	21.1	15	78.9
No	268	46	17.2	222	82.8
'p'	0.4011 Not Significant				

HYPERTENSION & COMPLICATIONS

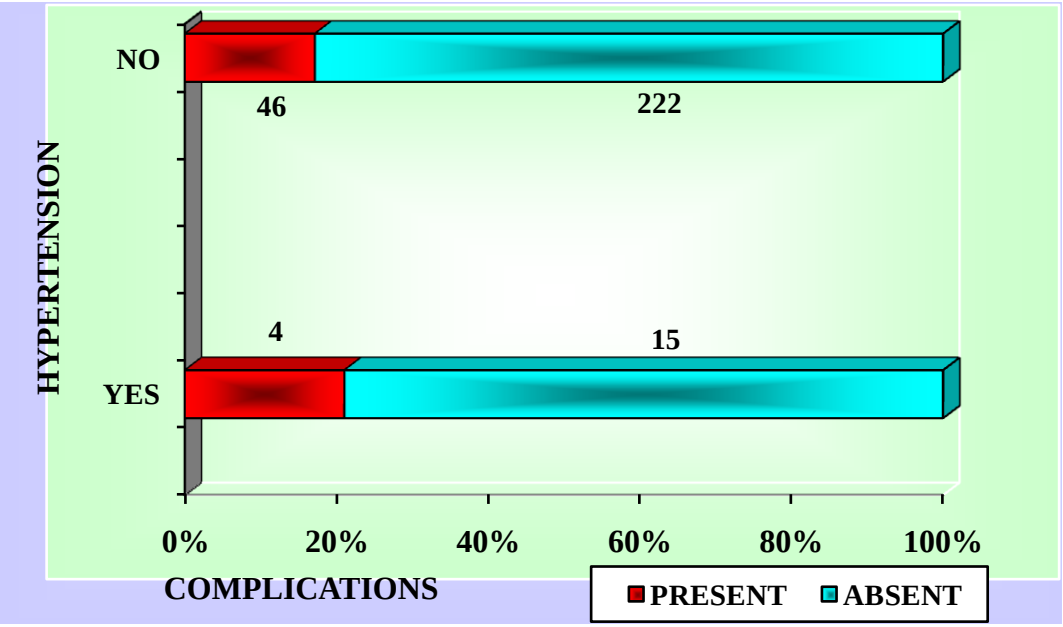


Table 16 : DIABETES AND COMPLICATIONS

Diabetes	No.of cases	Complications			
		Present		Absent	
		No	%	No	%
Yes	10	5	50	5	50
No	277	45	16.2	232	83.8
'p'	0.0167 Significant				

DIABETES & COMPLICATIONS

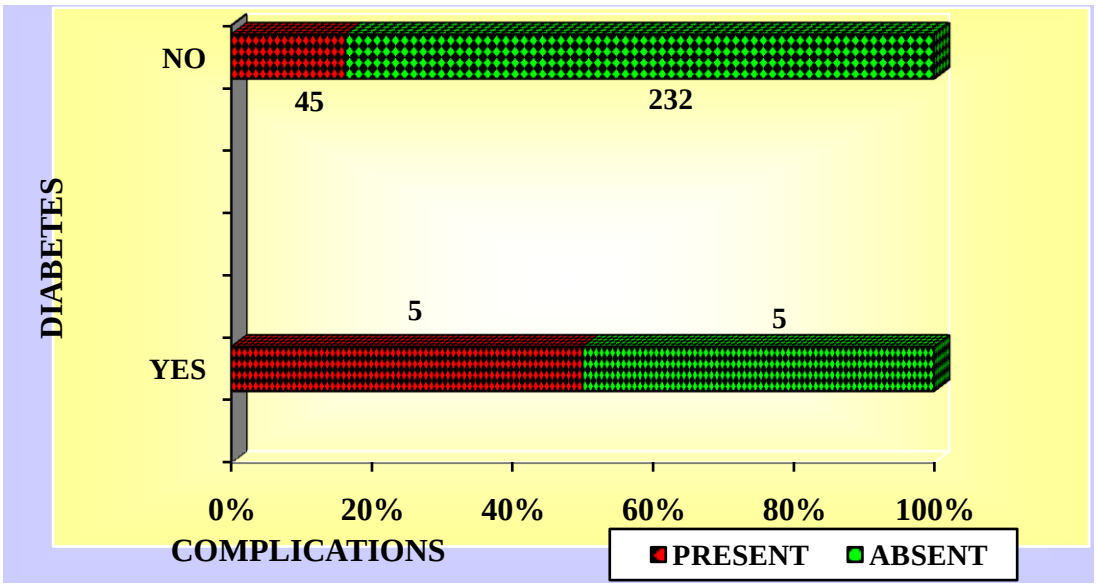


Table 17 :SURGEON'S EXPERIENCE AND COMPLICATIONS

Surgeon's experience	No.of cases	Complications			
		Present		Absent	
		No	%	No	%
< 4 years	21	20	95.2	1	4.8
> 4 years	266	30	11.3	236	88.7
'p'	0.0001 Significant				

SURGEON'S EXPERIENCE & COMPLICATIONS

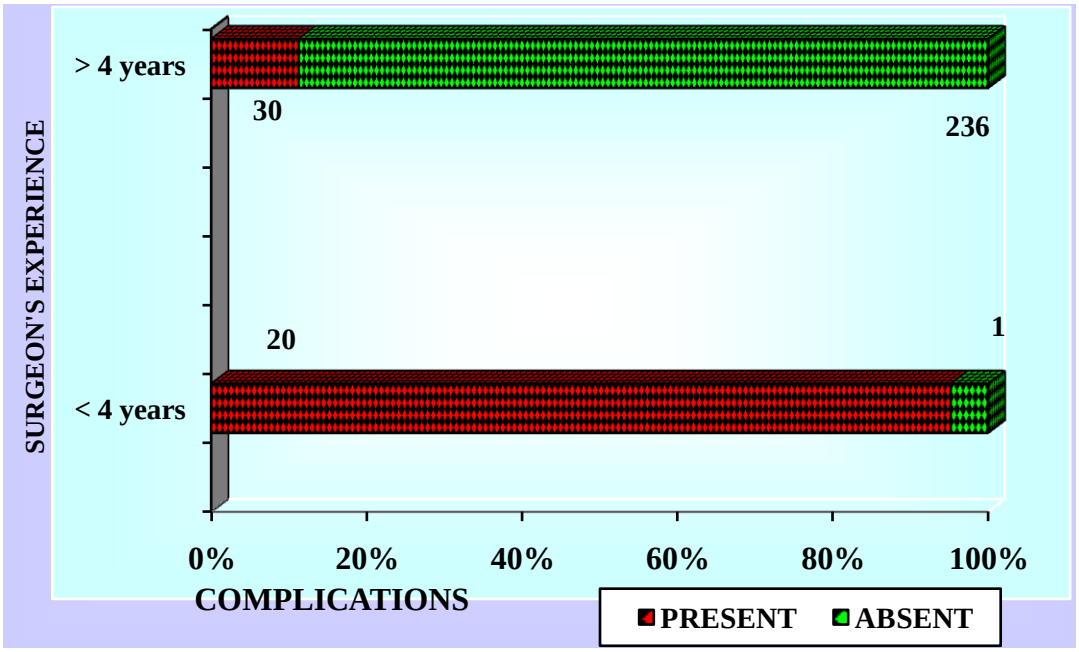


Table 18 : COMPLICATIONS PRESENT

Complications		**Cases**	
	Total No.	**No.**	**%**
A. Per operative complications			
1. Anaesthesia related	287		
i) Hypertension		9	3.1
ii) Tachycardia		7	2.4
Total		9*	3.1
2. Unique to laparoscopy	287		
a) Access related			
i) Vascular injury		2	0.7
ii) Subcutaneous emphysema		4	1.4
Access related total		6	2.1
b) Pnuemo Peritonium related	Nil	Nil	Nil
A2c) Instrumentation related	141		
i) Electrosurgical injury – Indirect		1	0.3
ii) Retractor / Grasper injury		1	0.3
iii) Specimen removal		2	0.7

Complications		**Cases**	
	Total No.	**No.**	**%**
iv) Mechanical clips		1	0.3
v) Equipment malfunction		1	0.3
A2C Inst. Related total		6	2.1
A2 unique to Lap. Total		11*	3.8
A3 Procedure related	121		
A3a) Lap. Chole cystectomy			
i) Bile duct injury		1	0.3
ii) Biliary leak		1	0.3
iii) Gall Stone spillage		4	1.4
iv) Pancreatitis		1	0.3
A3(a) Lap. Chole. Total		7	2.4
A3b) Lap. Appendicectomy	20		
i) Entero cutaneous fistula		1	0.3
ii) Stump appendicitis		1	0.3
iii)Caecal injury (Indirect)		1	0.3
A3b Lap. Appendi. Total		3	1.0

Complications		**Cases**	
	Total No.	**No.**	**%**
A3C) Lap. Herniorapphy	20		
i)Bleeding from tackersite		2	0.7
ii)Seromas		1	0.3
Lap. Herniorapphy. total		3	1.0
A3d) Lap. APR	Nil	Nil	Nil
A3e) Lap. Ventral Hernia repair	16		
i) Seromas		1	0.3
ii) Adhesions		5	1.7
iii) Recurrence		1	0.3
A3e Lap. Vent. Her. Total		7	2.4
A3f) Lap. Adhesiolysis	7		
i) Omental injury		1	0.3
A3f) Lap. Adhesiolysis total		1	0.3
A3g) Lap. Liver Abscess drainage	16		
i) Bleeding		1	0.3

Complications		**Cases**	
	Total No.	**No.**	**%**
Lap. Liver Abscess Drainage Total		1	0.3
B) Post operative complication Shoulder pain Gastritis DVT Embolism Port site infection Port site hernia CRPS Post operative complications total		1 4 1 2 1 2 2 13	0.3 1.4 0.3 0.7 0.3 0.7 0.7 4.5
Total complications		50*	17.4

*****Some cases had more than one complication.

DISCUSSION AND ANALYSIS

Since laparoscopic surgery is highly experience dependent ,follow up studies in different periods deserves continous attention.

In this study, we compare the results with various other studies .The mean procedure related complication is 7.3%.In literature ,overall complication rate is 0.2 to 0.3%(1) with an early learning curve with limited cases accounting for high complication rate.

In our study , risk factors such as H/O previous surgery and surgeon's experience had significant association with complication ,But in American study conducted by American college of surgeon, there was no significant association with surgeon's experience <5yr(17).

SURGEON' EXPERIENCE

Our study	P<0.0001,significant
American study	Not significant

But obesity has no influence over all complication as done in China study.

Access related complications is less than other studies .

ACCESS RELATED COMPLICATIONS

Our study	2.1%
JMAS study	3.77%(10)

Regarding procedure related complicatios ,our study has equivalent complication compared to other studies.

LAPAROSCOPIC CHOLECYSTECTOMY

Study	Overall complication	Most common complication.
Our study	2.4%	Gall stone spillage 1.4%
Hamadan study(8)	2.6%	Gall stone spillage 1.64%
JMAS study	6%	Bile duct injury 1.43%
General (10)	6.4%	

In laparoscopic appendicectomy,there was no significant change in our study compared to other studies.(12)

In laparoscopic ventral hernia repair ,we had significant reduced complications rate compared to other study

LAPAROSCOPIC VENTRAL HERNIA REPAIR

Study	Percentage	Most common complication
Our study	2.4%	Adhesion 1.7%
New delhi(11)		Recurrence 4.4%
Spain(16)	27.3%	Seroma 39.3%
Caroline(17)	13.2%	Recurrence 4.7%

In laparoscopic colorectal surgeries we had no significant procedure related complications. In Ireland study it was 1.47%.(14)

In post operative complications, we had 0.7% cases with embolism .In finnish nation study it is 0.3%.

Regarding portsite hernias it was 0.7% in our study ,

Our study	0.7%
Philadelphia study(10)	0.77%
Overall rate(11)	0.3-2%

similar to other studies in literature.

CONCLUSION

The advent of laparoscopic surgery has provided surgeons with new techniques to deal with familiar problems. Laparoscopy can reduce hospital stay, decrease post-operative pain and hasten recovery time.

The complication rates in individual category decreased significantly in this study compared to previous studies. It also confirms that laparoscopy is highly experience dependent.

Some of the measures followed by us during laparoscopic procedures that helped in preventing complication are

(a) ACCESS:

While introducing trocar, we always introduce primary trocar by 'OPEN TECHNIQUE' using blunt trocar

By following this method, we have not landed up in even single trocar injury during insertion.

(b) PNEUMOPERITONEUM:

After introducing primary trocar by open technique, insufflation of carbondioxide is done by slow insufflation method using an intraabdominal pressure of 15mmHg at 2.5litres/minute.

In open technique, it is important to monitor the pneumoperitoneum creation. Rapid insufflation may cause air getting trapped in circulation thereby causing gas embolism.

So far, we have not encountered any pneumoperitoneum related complications

(c) PROCEDURE RELATED:

(1) LAPAROSCOPIC CHOLECYSTECTOMY:

We routinely use hemo-lock clips for clamping cystic duct and artery and till now, no complication has occured due to the safety action of these clips and a tube drain is routinely kept for 24 hours to watch for any complication and hemolock clips are very useful when cystic duct is short and dilated where it cannot be clipped by usual endoclips.

(2) LAPAROSCOPIC APPENDICECTOMY:

By routinely using bipolar diathermy for appendicectomy, we have not encountered any case of iatrogenic bowel injury.

While using cautery, a complete knowledge of biophysics and mechanism of cautery is necessary.

(3) LAPAROSCOPIC ABDOMINOPERINEAL RESECTION:

The dreaded complication of ureteric injury in APR is prevented by preoperatively stenting the patient. This step helped in nil cases of ureteric injury in our institution.

Patient should be adviced to come for stent removal during discharge.

(4) LAPAROSCOPIC VENTRAL HERNIA REPAIR:

We always use absorbable or delayed absorbable sutures for fixing the mesh using transfascial sutures because use of non-absorbable suture material may cause sinus formation.

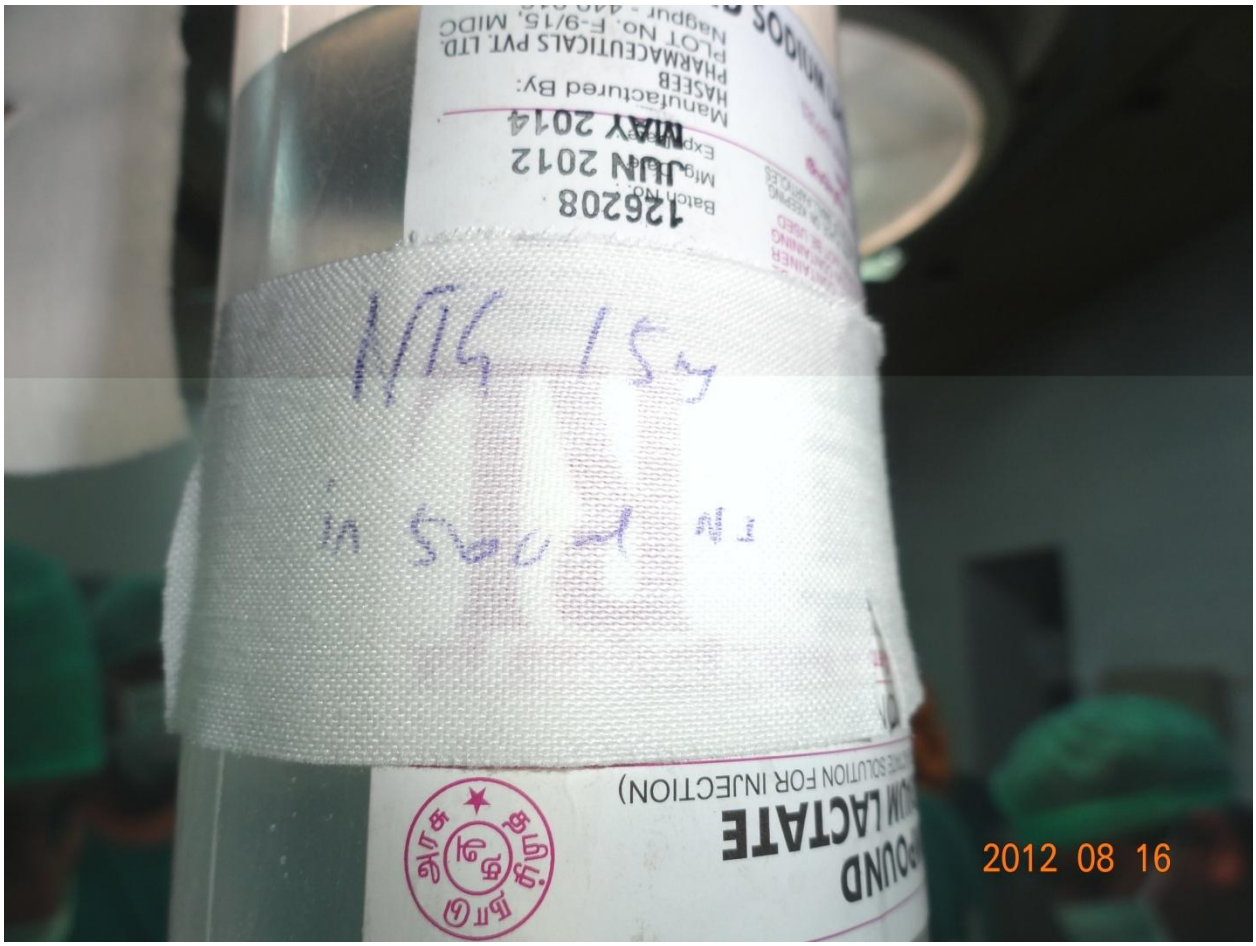
(5) LAPAROSCOPIC LIVER ABSCESS DRAINAGE:

After performing Diagnostic laparoscopy, a soft wide bore drain is introduced in to the cavity under laparoscopic guidance so that it helps in drainage of thick-viscid pus.

So we have not encountered any case of residual cavity, vascular and biliary injury in this two-year period.

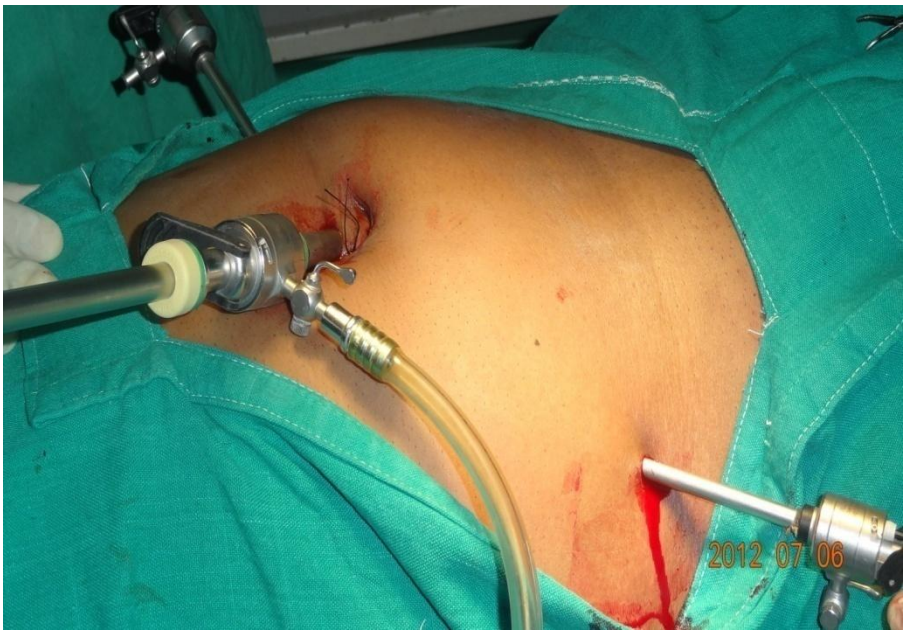
The key to successful laparoscopy is appropriate patient selection, preparation, efficient supervision after surgery. Early recognition of injuries during surgery and early alertness to post-operative signs followed by immediate treatment are crucial to reduce catastrophic sequences.

With close attention to peroperative and postoperative care, these unique procedures will be safe, effective and enduring. With the accumulation of surgi cal experience and aid of preventive measures, complication rate can be decreased significantly.



1. a). NTG Drip

2. a).Subcutaneous Emphysema

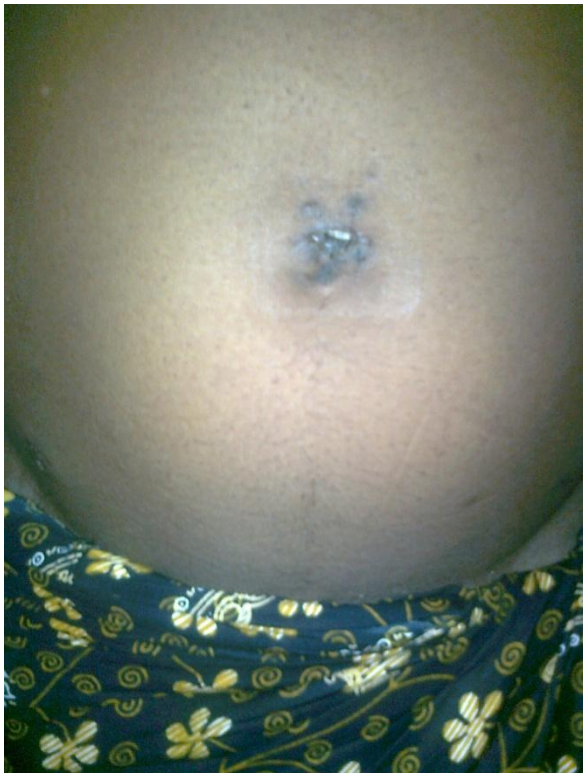


2.c). Trocar site Bleeding

2.d).Bladder Injury

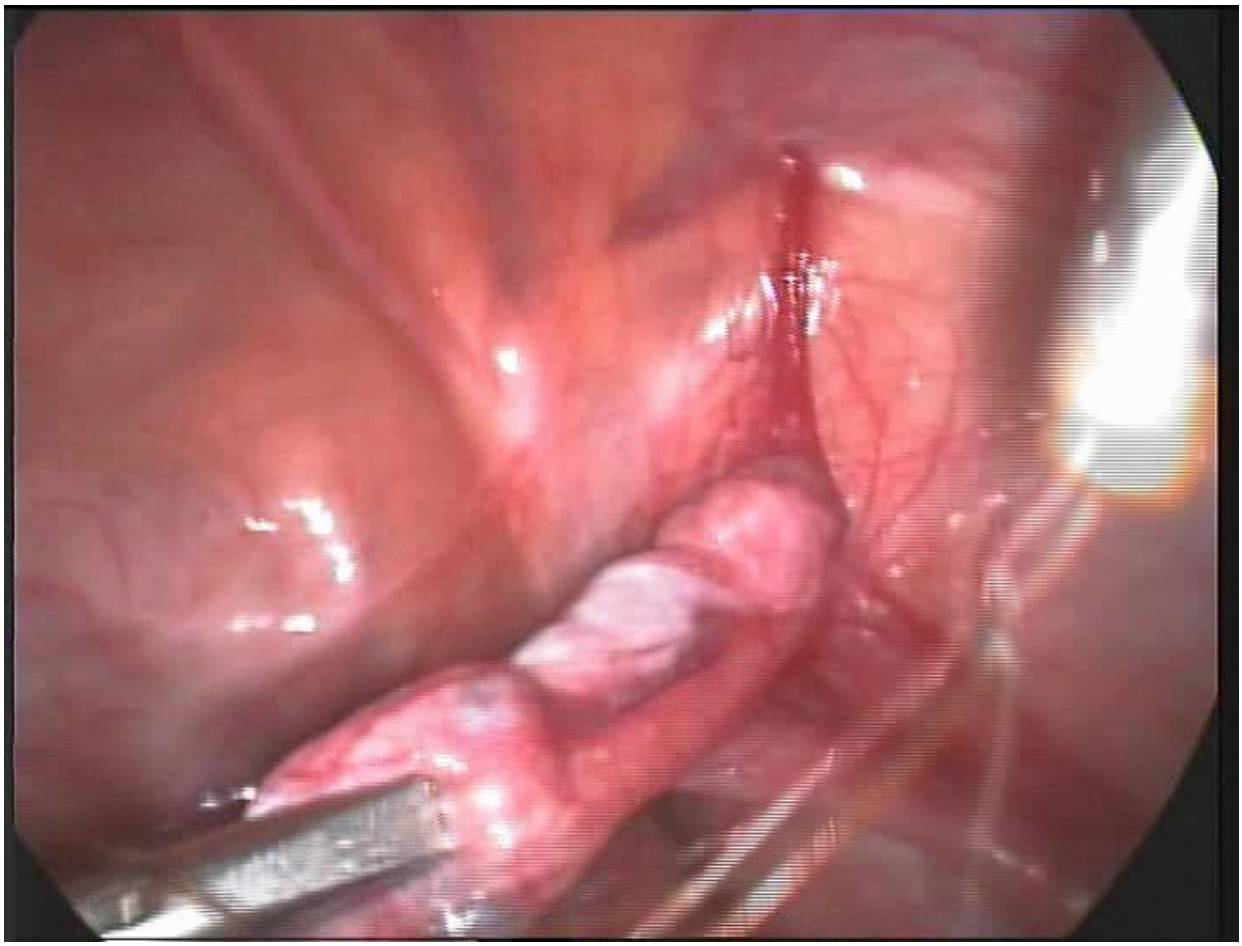
(6). Postoperative ileus

(6). Portsite Infection



6. d). Portsite Metastasis

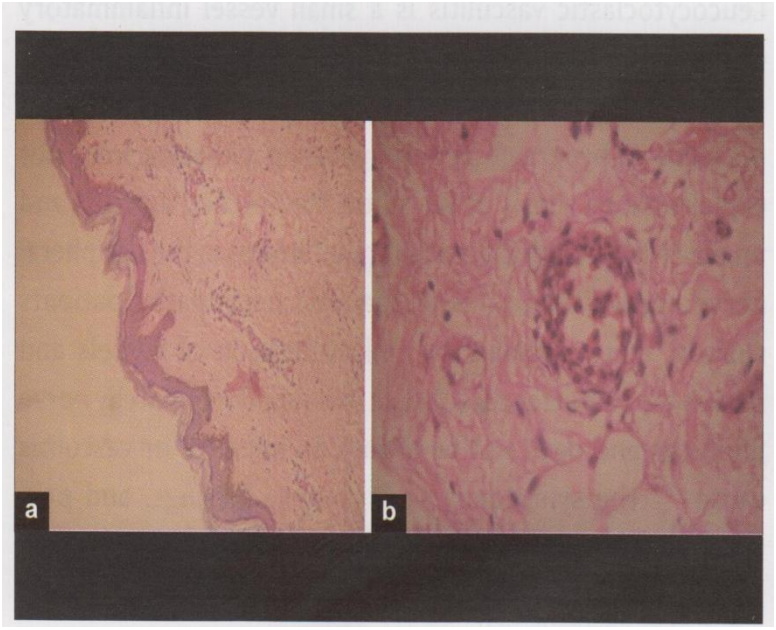
6.b). Portsite Sinus



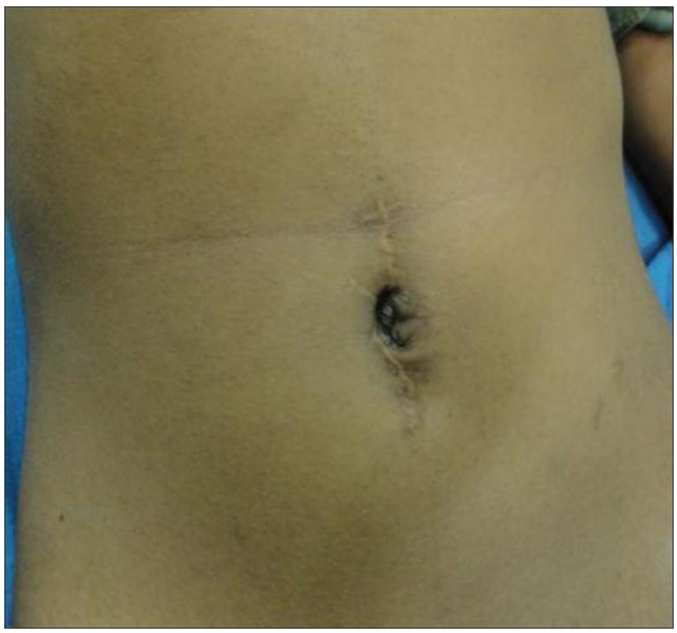
6.c). Portsite Hernias

6. d). Portsite Hernia – Lap Hernioplasty

6 d). Portsite Hernia – Open Hernioplasty



6 c). Histopathology

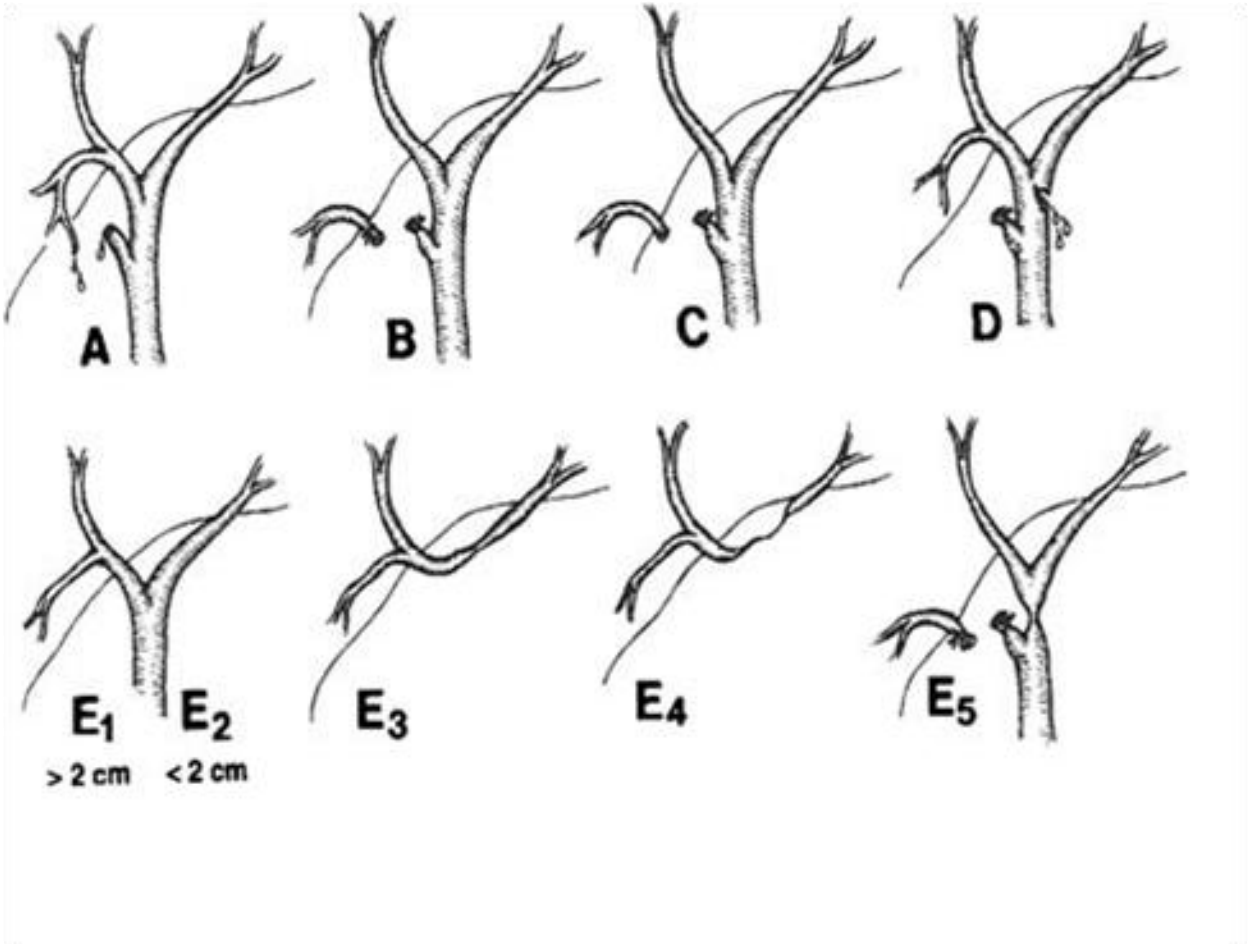


6. c). CRPS

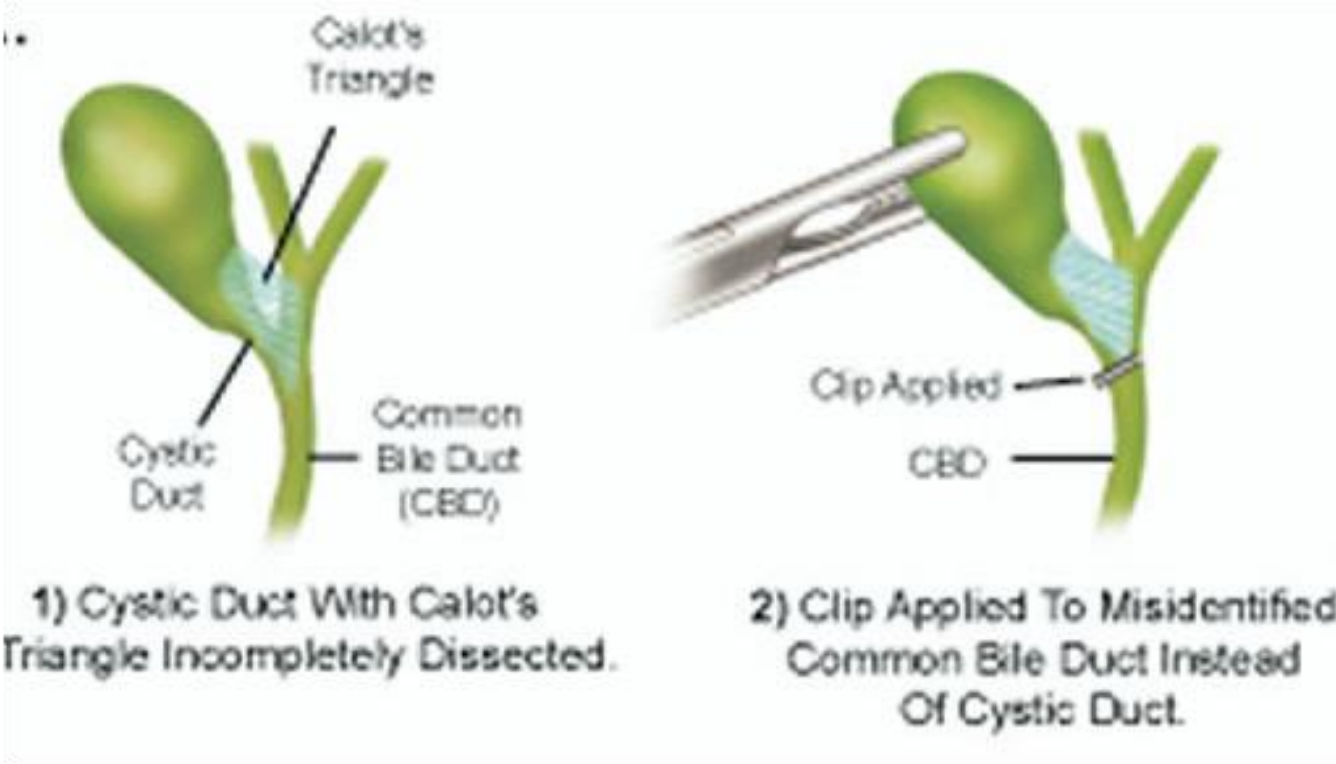
II. 1. A). Bile duct Injury

CLASSIFICATION OF BILE DUCT INJURIES:

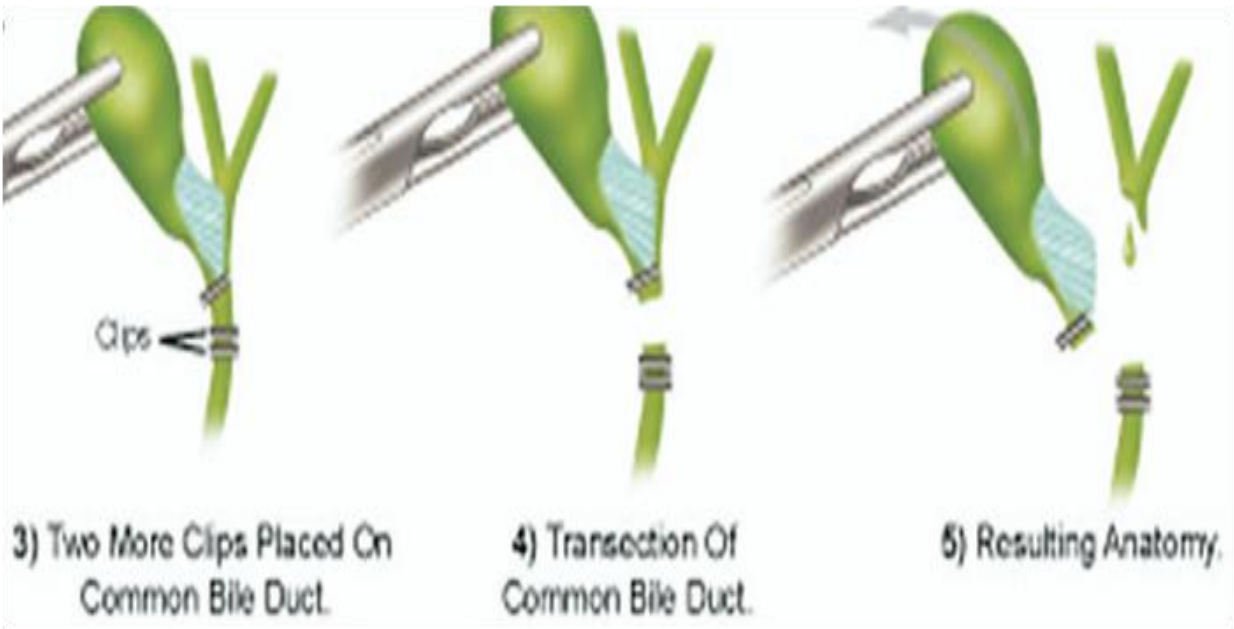
1) **Bismuth - corllete classification**
2) **Stewart - way classification**
3) **Strasburg - classification**
4) **Hannover classification**

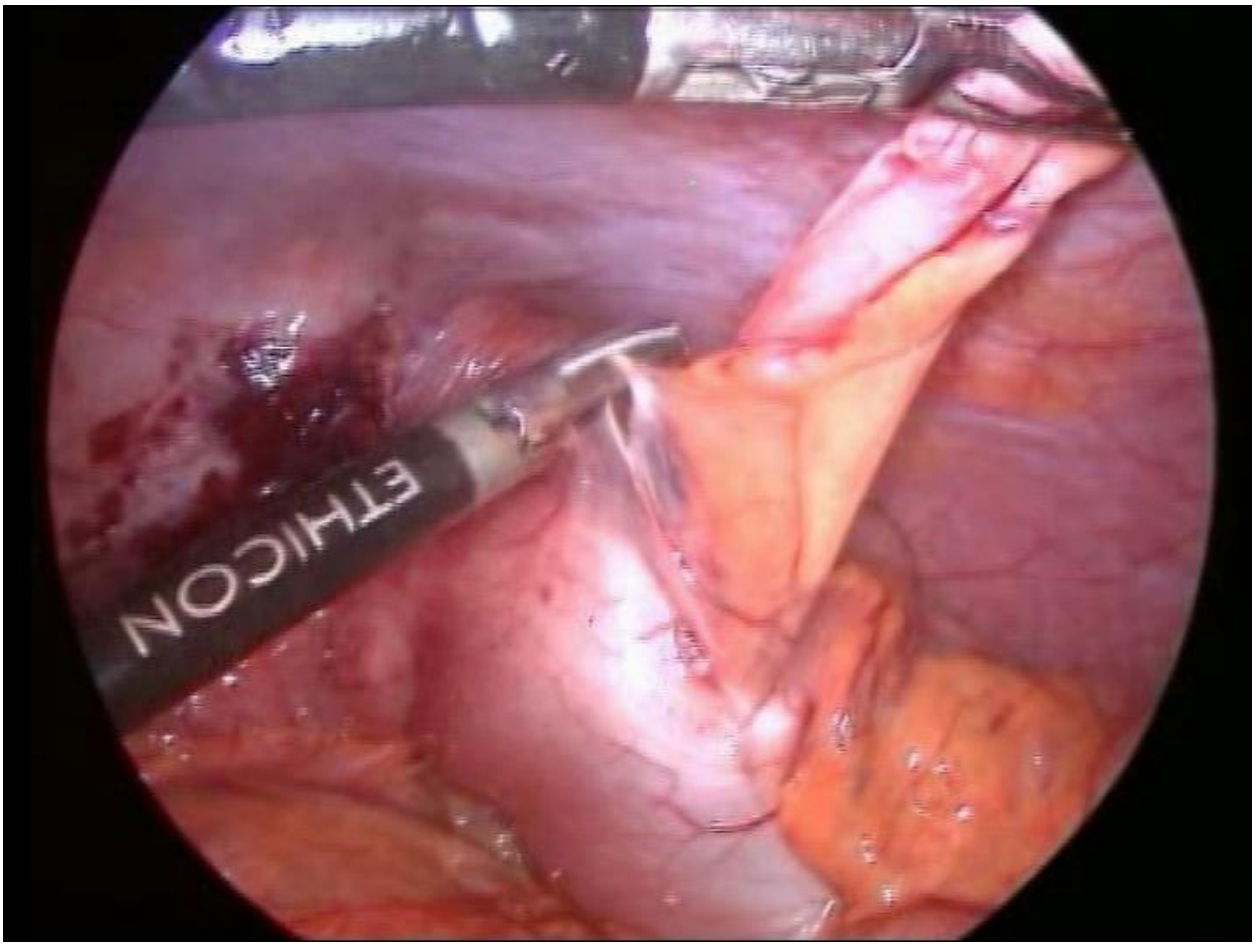


1 (a). Strasberg Classification

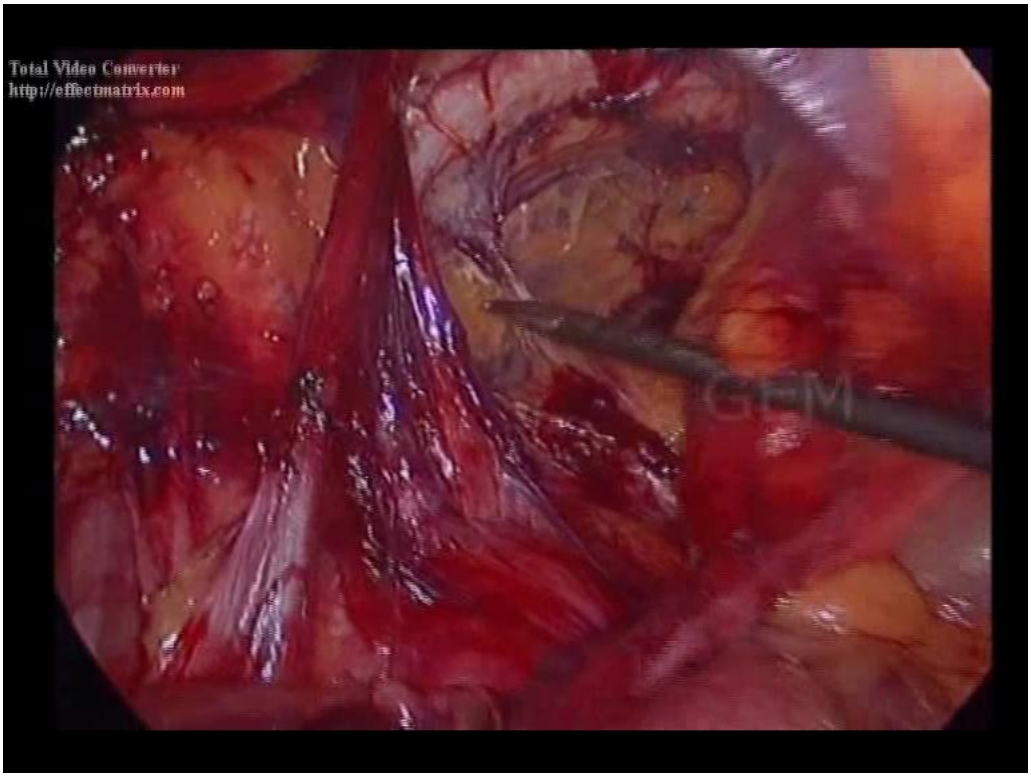


1. a). Mechanisms of Bile duct Injury

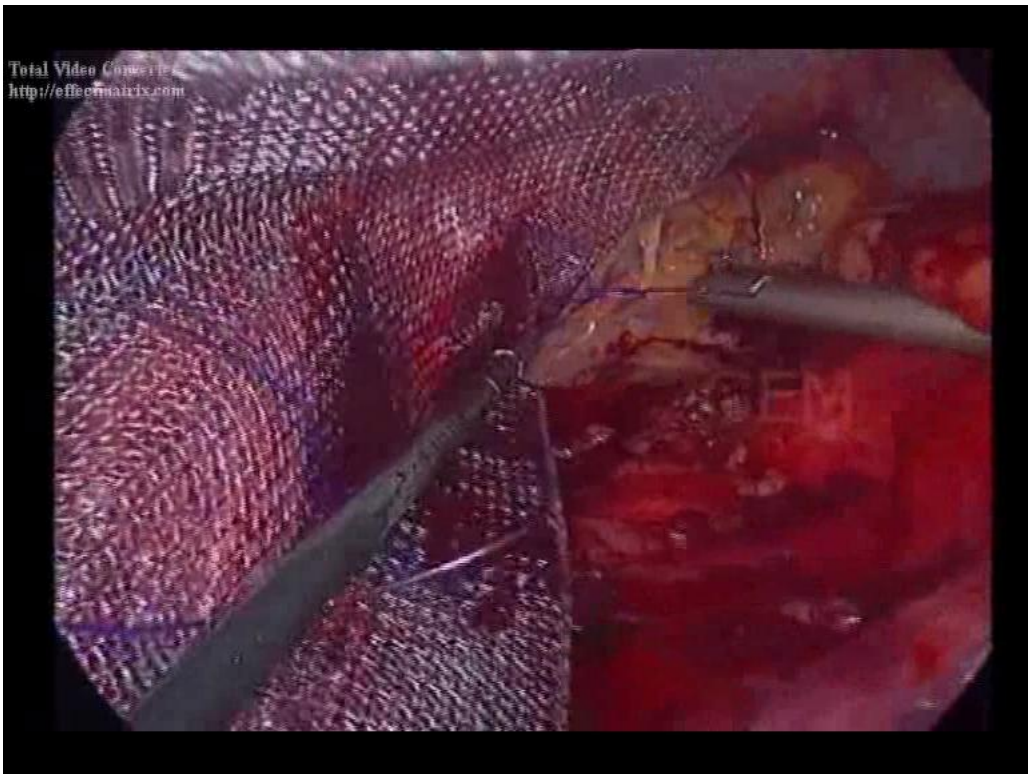


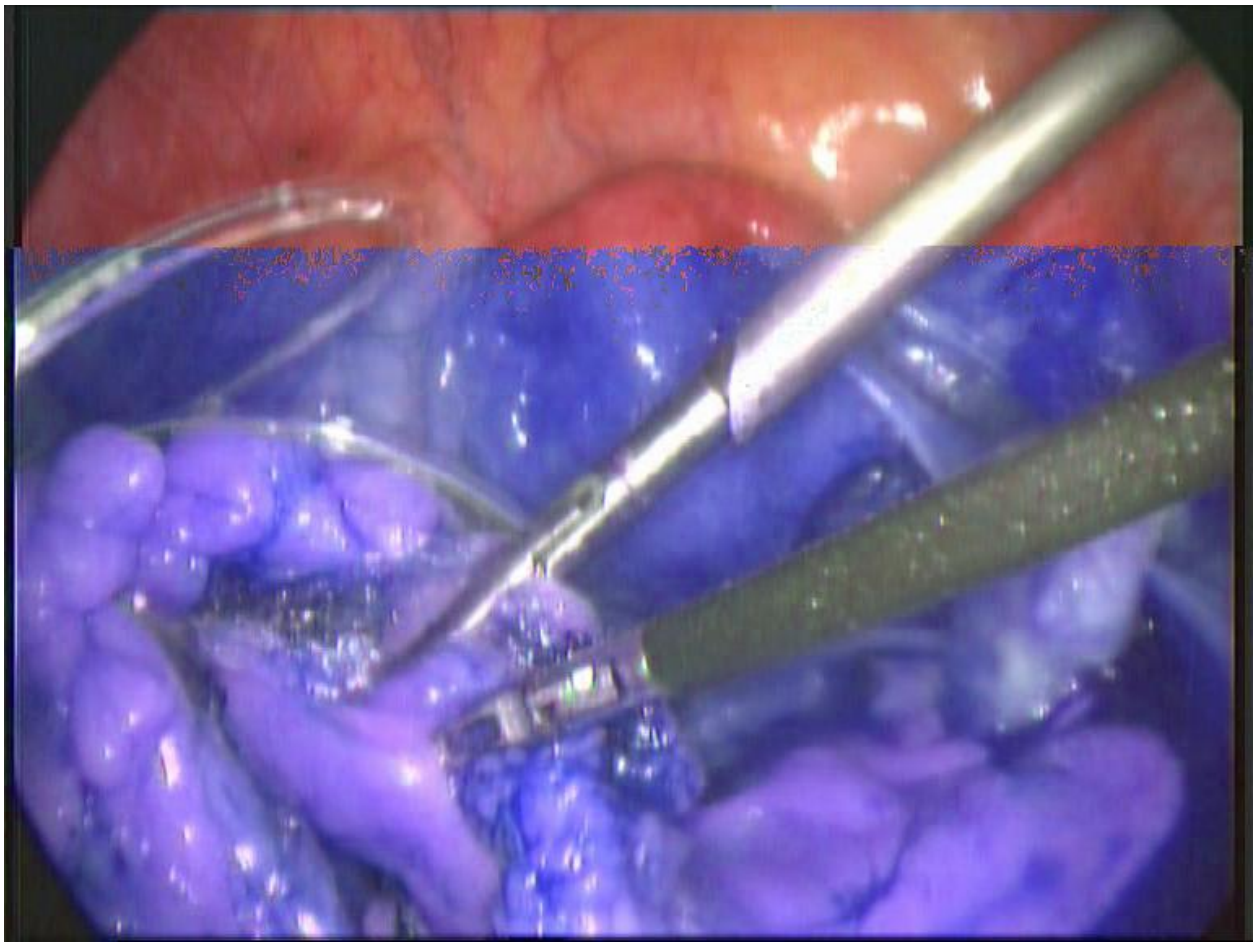


2. d). Bowel Injury

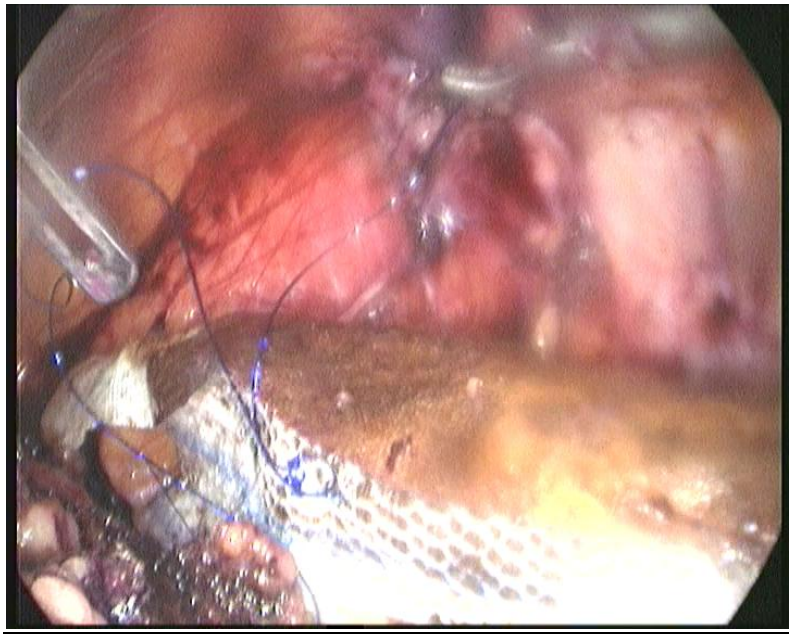


3. a). Hemorrhage



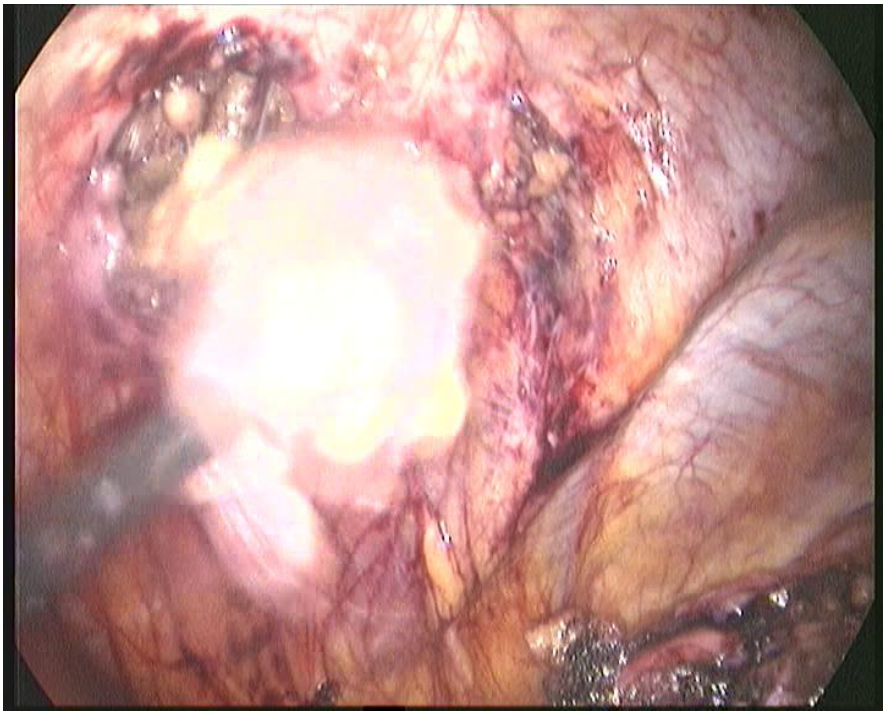


4. (5). Specimen Retrieval in APR

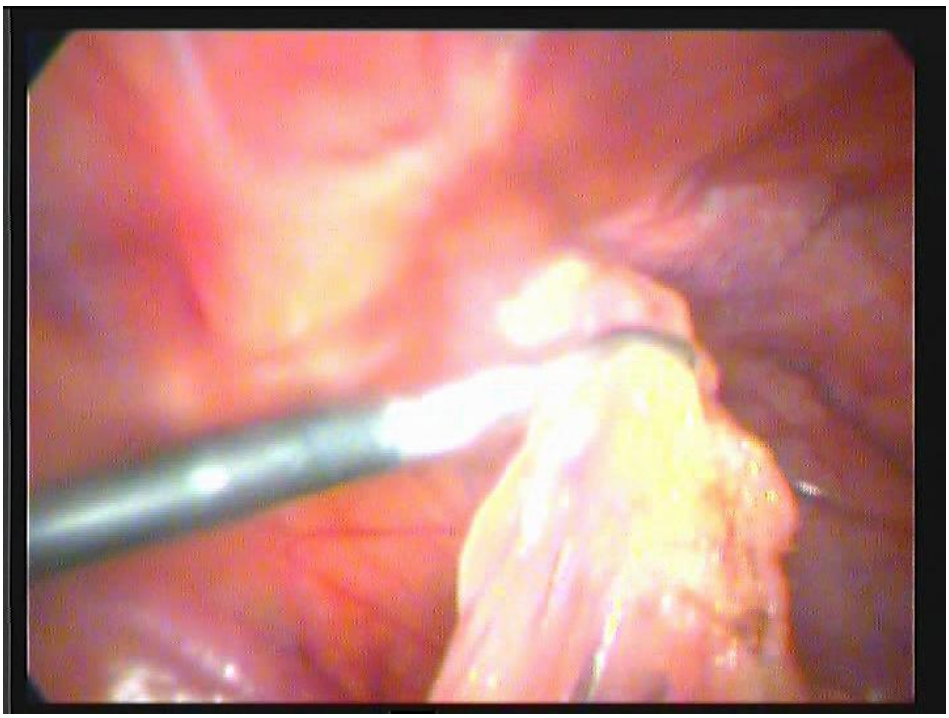


1. C). Non – Absorbable sutures in Transfascial sutures

5.e). Umblical Hernia Laparoscopic fascia lata repair done



5. Lap Adhesiolysis



6. Lap Adhesiolysis

5. Laparoscopic Liver Abscess Drainage

5. Laparoscopic Liver Abscess Drainage

BIBLIOGRAPHY

1)Art of laparoscopic surgeries C.Palanivelu vol1,2:139

2) Hill DJ, Complications of the laparoscopic approach. Bailliere.i Clin Obstet Gynaecol 1994; 8: 865–879. Frenkel Y, Oelsner G, Ben-Baruch G and Menczer J. Major surgical complications of laparoscopy. Eur J Obstet Gynecol Reprod Biol 1981; 12: 107–111.

3) Maihofner C. Seifeet, Markovie.K. Complex regional pain syndrome – pathophysiological concepts and therapies – Eur J Neuro' 2010,17-6-139

4) Ragavan Muniasamy - Narayana medical college. Andhrapradesh. India – Type I CRPS of umbilical port site – J Min access surgery June 2012; 50

5) Naleschinski D. Basoin CRPS Neuropathic or not Cure pain headache Ref.2010; 14; 196-202

6) Harden RN bruhellis, Wilson PR. Propsed new diagnostic criteria for CRPS. Pain med 2007; 8-8326

7) Oaklander AL, Fieldo HL. Is reflex sympathetic dystrophy/CRPS type I a small fibre neuropathy? Ann Neuol 2009; 65-6

8) Frequency of complications due to laparoscopic cholecystectomy in Hamodan hospitals. Department of surgery, Hamedan university. Iran (PUBMED)

9) Resident involvement in laparoscopic appendicectomy-is it significant – American college of surgeons (PUBMED)

10) Trocar site herniation following lap cholecystectomy and significance of incidental pre-existing umbilical hernia – Philadelphia J of surgery (PUBMED)

11) A systematic review of laparoscopic port site hernias in GI surgery – Ireland J of surgery (PUBMED)

12) Major complication from 1262 operative lap cases. Sydney – Australia (PUBMED)

13) Lap adhesiolysis – A retrospective analytical study; Netherland (PUBMED)

14) Lap abdomino-perineal resection for mid/lower rectal adenocarcinoma – Hamover institute, Germany (PUBMED)

15) The impact of BMI on outcomes. Sncte (PUBMED)

16) Trocar site herniation after lap ventral hernia repair, Spain (PUBMED)

17) Risk factors for complication in groin hernia, Sweden institute (PUBMED)

18) Lap ventral/incisional hernia repair, Deck I Devi foods, Newdelhi (PUBMED)

19) Complications of lap cholecystectomy-An analytical study-British journal 2007.vol.3 (PUBMED)

20) Extrabiliary complication during lap cholecystectomy – Journal of minimal access surgery (PUBMED)

PROFORMA

Name :

Age/Sex : Height : Weight :

I.PNO :

D.O.A :

D.O.D :

RISK FACTORS:

Obesity (BMI)	☐
H/O Previous Surgery	☐
Type of Scar	☐
Hypertension	☐
Diabetes	☐
Coronary Artery Disease	☐
COPD	☐
Surgeon’s Experience	☐

1). **PEROPERATIVE COMPLICATIONS:**

1. ANAESTHESIA RELATED;

Hypertension ☐

Hypercarbia ☐

Tachycardia ☐

Arrhythmias ☐

Aspiration ☐

Collapse ☐

Embolism ☐

Pulmonary edema ☐

Hypothermia ☐

2. UNIQUE TO LAPAROSCOPY:

A). ACCESS RELATED:

Subcutaneous Emphysema ☐

Vascular injury ☐

Visceral injury ☐

Solid organ injury ☐

B). PNEUMO PERITONEUM RELATED:

Tachycardia ☐

☐

Hypertension

Hypercarbia ☐

Bradycardia ☐

Arrythmias ☐

MI ☐

Embolism ☐

Tampanode ☐

Pneumothorax ☐

c). INSTRUMENTATION RELATED:

Electrosurgical injury – direct ☐

indirect ☐

unrecognised ☐

Retractor / grasper injury ☐

Specimen retrieval ☐

Mechanical clips ☐

Equipment malfunction ☐

3). PROCEDURE RELATED:

a). LAP CHOLECYSTECTOMY:

Bile duct injury ☐

Bile leak ☐

Biliary fistula ☐

Haemorrhage ☐

Gallstone spillage ☐

Diaphragmatic Injury ☐

Port site metastasis ☐

Abscess ☐

Pancreatitis ☐

Cholangitis ☐

b).**LAP. APPENDICECTOMY:**

Haemorrhage ☐

Appendeceal rupture ☐

Abscess formation ☐

Entero cutaneous fistula ☐

Stump appendicitis ☐

Small bowel injury ☐

Caecal injury ☐

c). LAP. HERNIORAPPHY:

Haemorrhage ☐

Nerve entrapment ☐

Testicular vessels, iliacvessels injury ☐

Mesh infection ☐

Mesh migration ☐

Bleeding from tackersite ☐

Seromas ☐

Hydrocele ☐

Bowel adhesions, fistula ☐

Recurrence ☐

d). LAP APR:

Mesenteric injury ☐

Injury to ureter, bladder ☐

Anastomotic leak ☐

Port site metatasis ☐

e). LAP VENTRALHERNIA PEPAIR:

Seromas ☐

Nerve entrapment ☐

Bowel injury ☐

Adhesion ☐

Mesh infection ☐

☐

Mesh malplacement

Mesh migration ☐

Recurrence ☐

f). LAP ADHESIOLYSIS:

Enterotomy ☐

Omental injury ☐

II). POST OPERATIVE COMPLICATIONS:

Pain ☐

Nausea, vomiting ☐

Shoulder pain ☐

Gastritis, Enteritis ☐

Hypercarbia ☐

Atelectasis ☐

DVT ☐

Embolism ☐

Port site infections – atypical mycobacteria ☐

Port site hernia ☐

Ref. No. 6087 /E4/3/2011

Govt.Rajaji Hospital,Madurai.20.
Dated: 14.12.2011

Sub: Establishment-Govt. Rajaji Hospital, aMadurai-20-
Ethics committee-Meeting Agenda-communicated-regarding.

The next Ethics Committee meeting of the Govt. Rajaji Hospital, Madurai was held at 11.00 Am to 1.00 Pm on Thursday the 27th Oct 2011 at the Dean's Chamber, Govt. Rajaji Hospital, Madurai. The following members of the committee have attend the meeting.

1.Dr.V. Ramanujam, M.D., D.P.M.,	M.S, i/c Govt.Rajaji Hospital,Madurai.	Convenor
2.Dr.N.Vijayasankaran,M.ch(Uro.) 094-430-58793 0452-2584397	Sr.Consultant Urologist Madurai Kidney Centre, Sivagangai Road,Madurai	Chairman
3. Dr.P.K. Muthu Kumarasamy, M.D., 9843050911	Professor & H.O.D of Medical, Oncology(Retired)	Member Secretary
4.Dr.T.Meena,MD 094-437-74875	Professor of Physiology, Madurai Medical College	Member
5.Dr.Moses K.Daniel MD(Gen.Medicine) 098-421-56066	Professor of Medicine Madurai Medical College	Member
6.Dr.M.Gobinath,MS(Gen.Surgery)	Professor of Surgery Madurai Medical College	Member
7.Dr.S. Dilshadh, MD(O&G)	Professor of OP&Gyn Madurai Medical College	Member
8.Dr.S.Vadivel Murugan., M.D, 097-871-50040	Professor of Medicine Madurai Medical College	Member
9.Shri.M.Sridher,B.sc.B.L. 099-949-07400	Advocate, 623-B.II.Floor,East II Cross, K.K.Nagar,Madurai.20.	Member
10.Shri.O.B.D.Bharat,B.sc., 094-437-14162	Businessman Plot No.588, K.K.Nagar,Madurai.20.	Member
11.Shri. S.sivakumar,M.A(Social) Mphil 093-444-84990	Sociologist, Plot No.51 F.F, K.K Nagar, Madurai.	Member

Following projects were approved by the committee.

Sl No	Name of P.G.	Course	Name of the Project	Remarks
1.	Dr. Mercy Swamidoss,	PG, M.D (path)	Clinicopathologic correlations in neoplastic and non-neoplastic endometrial lesions.	Approved
2.	Dr. B. Shobana	PG, M.D (path)	Clinicopathologic Correlations of breast lesions with ER and PR assays in selected patients.	Approved
3.	Dr. R. Sivaelangovan	PG, M.D (path)	Clinicopathologic and cytologic correlations of head and neck lesions.	Approved
4.	Dr.A. Divya	PG, M.D (path)	Clinicopathologic correlations of colorectal neoplasms.	Approved
5.	Dr. N. Muthusamy	PG, M.S (genl surg)	Various modalities of treatment in liver abscesses.	Approved
6.	Dr. R. Kalpana	PG, M.S (genl surg)	Various modalities of treatment in haemarrhoids .	Approved
7.	Dr. T. Ashok Kumar	PG, M.S (genl surg)	Various techniques of umbilical hernia repair.	Approved
8.	Dr. A. Ranjani	PG, M.S (genl surg)	Complication of laparoscopic procedures.	Approved
9.	Dr.A. Meenakshi Sundaram	PG, M.S (genl surg)	Clinico-pathologic study and treatment of sino-nasal masses.	Approved
10.	Dr. N. Prasanna Venkateshan	PG, M.S (ortho)	Functional outcome after bipolar hemiarthroplasty for unstable femoral intertrochanteric fractures in elderly patients.	Approved
11.	Dr.S. Siva Swaminathan	PG, M.S (ortho)	Congenital proximal radioulnar synostosis treated with derotation osteotomy through the synostotic mass – analysis of results.	Approved
12.	Dr. T. Arun Sam	PG, M.S (ortho)	Functional outcome of clavicular fractures treated with plate osteosynthesis.	Approved
13.	Dr.P. Arun Anand	PG, M.S (ortho)	Functional and radiologic outcome of unstable acetabular fractures treated with 'single approach'.	Approved
14.	J. Asnet Mary	Research Associate (Biotech)	Identification and characterization of biomolecules involved in dengue virus-vector-host interactions.	Approved
15.	A. Britto	PG, M.Sc (Nursing; med-surg)	Effectiveness of planned teaching strategies on knowledge of practice on effects of chemotherapy among patients attending oncology outpatient department.	Approved

16.	Dr. Virgin Jeena	PG, MD (oral Med)	Prevalance of periodontitis and missing teeth in a group of diabetic patients as compared with a group of healthy patients.	Appro

Please note that the investigator should adhere the following: She/He should get a detailed informed consent from the patients/participants and maintain Confidentiality.

1. She/He should carry out the work without detrimental to regular activities as well as without extra expenditure to the institution le Government.
2. She/He should inform the institution Ethical Committee in case of any change of study procedure site and investigation or guide.
3. She/He should not deviate for the area of the work for which applied for Ethical clearance.

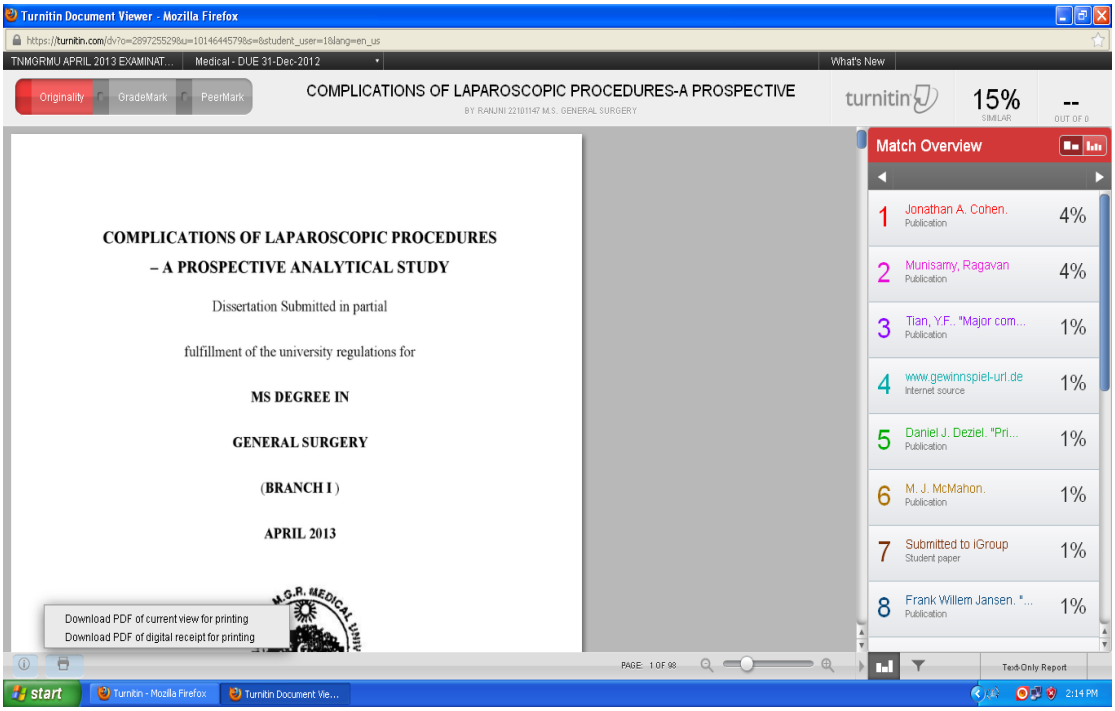
She/He should inform the IEC immediately, in case of any adverse events pr Serious adverse reactions.

4. She/he should abide to the rules and regulations of the institution.
5. She/He should complete the work within the specific period and apply for if any Extension of time is required She should apply for permission again and do the work.
6. She/He should submit the summary of the work bto the Ethical Committee on Completion of the work.
7. She/He should not claim any funds from the institution while doing the word or on completion.
8. She/He should understand that the members of IEC have the right to monitor the work with prior intimation.

DEAN

14/12/11

To
All the above members and Head of the Departments concerned.
All the Applicants.


Turnitin Document Viewer - Mozilla Firefox
COMPLICATIONS OF LAPAROSCOPIC PROCEDURES-A PROSPECTIVE
15%
COMPLICATIONS OF LAPAROSCOPIC PROCEDURES
– A PROSPECTIVE ANALYTICAL STUDY
Dissertation Submitted in partial
fulfillment of the university regulations for
MS DEGREE IN
GENERAL SURGERY
(BRANCH I)
APRIL 2013
Download PDF of current view for printing
Download PDF of digital receipt for printing
Match Overview
1 Jonathan A. Cohen. 4%
2 Munisamy, Ragavan 4%
3 Tian, Y.F.. "Major com... 1%
4 www.gewinnspiel-url.de 1%
5 Daniel J. Deziel. "Pri... 1%
6 M. J. McMahon. 1%
7 Submitted to iGroup 1%
8 Frank Willem Jansen. "... 1%
start

MASTER CHART

No.	PROCEDURE	AGE	SEX	RISK FACTORS									COMPLICATIONS				
				BMI	H/O PREVIOUS SURGERY	TYPE OF SCAR	HYPERTENSION	DIABETES	CORONARY ARTERY DISEAS	COPD	SURGEON'S	RISK INCIDENCE	ANAES.	UNIQUE TO LAP	PROCEDURE RELATED	POST OPERATIVE	COMPLICATIONS INCIDENCE
1	LAP.CHOLECYSTECTOMY	19	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2	LAP.CHOLECYSTECTOMY	25	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	LAP.CHOLECYSTECTOMY	37	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
4	LAP.CHOLECYSTECTOMY	45	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2
5	LAP.CHOLECYSTECTOMY	25	F	2	2	2	2	2	2	2	2	2	2	1	2	2	1
6	LAP.CHOLECYSTECTOMY	37	F	2	2	2	2	2	2	2	2	2	2	1	2	2	1
7	LAP.CHOLECYSTECTOMY	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
8	LAP.CHOLECYSTECTOMY	40	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1
9	LAP.CHOLECYSTECTOMY	34	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	LAP.CHOLECYSTECTOMY	28	F	2	2	2	2	2	2	2	2	2	1	2	2	2	1
11	LAP.CHOLECYSTECTOMY	30	M	2	2	2	2	2	2	2	1	1	2	2	1	2	1
12	LAP.CHOLECYSTECTOMY	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	LAP.CHOLECYSTECTOMY	41	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	LAP.CHOLECYSTECTOMY	28	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	LAP.CHOLECYSTECTOMY	30	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	LAP.CHOLECYSTECTOMY	18	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	LAP.CHOLECYSTECTOMY	37	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	LAP.CHOLECYSTECTOMY	53	F	2	2	2	2	1	2	2	2	1	2	2	2	1	1
19	LAP.CHOLECYSTECTOMY	21	F	2	2	2	2	2	2	2	1	1	2	2	1	1	1
20	LAP.CHOLECYSTECTOMY	28	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	LAP.CHOLECYSTECTOMY	46	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
22	LAP.CHOLECYSTECTOMY	49	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
23	LAP.CHOLECYSTECTOMY	43	M	2	2	2	1	2	2	2	1	1	2	2	1	2	1
24	LAP.CHOLECYSTECTOMY	45	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2
25	LAP.CHOLECYSTECTOMY	32	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	LAP.CHOLECYSTECTOMY	57	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	LAP.CHOLECYSTECTOMY	62	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	LAP.CHOLECYSTECTOMY	25	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29	LAP.CHOLECYSTECTOMY	42	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30	LAP.CHOLECYSTECTOMY	27	F	2	2	2	2	2	2	2	2	2	2	1	2	2	1
31	LAP.CHOLECYSTECTOMY	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
32	LAP.CHOLECYSTECTOMY	51	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2

33	LAP.CHOLECYSTECTOMY	60	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
34	LAP.CHOLECYSTECTOMY	58	M	2	2	2	2	1	2	2	2	1	1	2	2	2	1	
35	LAP.CHOLECYSTECTOMY	35	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1	
36	LAP.CHOLECYSTECTOMY	65	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	LAP.CHOLECYSTECTOMY	22	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
38	LAP.CHOLECYSTECTOMY	55	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
39	LAP.CHOLECYSTECTOMY	50	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
40	LAP.CHOLECYSTECTOMY	45	F	2	2	2	1	1	2	2	1	1	2	2	1	2	1	
41	LAP.CHOLECYSTECTOMY	58	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
42	LAP.CHOLECYSTECTOMY	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
43	LAP.CHOLECYSTECTOMY	39	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
44	LAP.CHOLECYSTECTOMY	40	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
45	LAP.CHOLECYSTECTOMY	39	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
46	LAP.CHOLECYSTECTOMY	51	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
47	LAP.CHOLECYSTECTOMY	56	F	2	2	2	2	1	2	2	1	1	2	2	1	2	1	
48	LAP.CHOLECYSTECTOMY	48	M	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
49	LAP.CHOLECYSTECTOMY	38	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
50	LAP.CHOLECYSTECTOMY	48	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
51	LAP.CHOLECYSTECTOMY	42	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
52	LAP.CHOLECYSTECTOMY	55	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
53	LAP.CHOLECYSTECTOMY	60	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1	
54	LAP.CHOLECYSTECTOMY	59	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1	
55	LAP.CHOLECYSTECTOMY	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
56	LAP.CHOLECYSTECTOMY	43	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
57	LAP.CHOLECYSTECTOMY	53	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
58	LAP.APPENDICETOMY	40	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
59	LAP.APPENDICETOMY	39	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
60	LAP.APPENDICETOMY	22	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
61	LAP.APPENDICETOMY	25	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
62	LAP.APPENDICETOMY	18	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
63	LAP.APPENDICETOMY	40	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
64	LAP.APPENDICETOMY	25	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
65	LAP.APPENDICETOMY	19	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
66	LAP.APPENDICETOMY	42	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
67	LAP.APPENDICETOMY	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
68	LAP.APPENDICETOMY	43	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
69	LAP.APPENDICETOMY	26	F	2	2	2	2	2	2	2	1	1	1	2	1	2	1	
70	LAP.APPENDICETOMY	25	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
71	LAP.APPENDICETOMY	19	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
72	LAP.APPENDICETOMY	42	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
73	LAP.APPENDICETOMY	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
74	LAP.APPENDICETOMY	26	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	LAP.APPENDICETOMY	43	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
76	LAP.APPENDICETOMY	21	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
77	LAP.APPENDICETOMY	14	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

78	LAP.APPENDICETOMY	23	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
79	LAP.APPENDICETOMY	32	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
80	LAP.APPENDICETOMY	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
81	LAP.APPENDICETOMY	34	M	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
82	LAP.APPENDICETOMY	18	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
83	LAP.APPENDICETOMY	17	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
84	LAP.APPENDICETOMY	34	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
85	LAP.APPENDICETOMY	60	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
86	LAP.APPENDICETOMY	14	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
87	LAP.APPENDICETOMY	13	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
88	LAP.APPENDICETOMY	24	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
89	LAP.APPENDICETOMY	14	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
90	LAP.APPENDICETOMY	23	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
91	LAP.APPENDICETOMY	39	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
92	LAP.APPENDICETOMY	30	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
93	LAP.APPENDICETOMY	14	M	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2
94	LAP.APPENDICETOMY	15	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
95	LAP.APPENDICETOMY	37	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
96	LAP.APPENDICETOMY	20	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
97	LAP.APPENDICETOMY	68	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
98	LAP.APPENDICETOMY	35	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
99	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
100	LAP.APPENDICETOMY	47	F	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2
101	LAP.APPENDICETOMY	45	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
102	LAP.APPENDICETOMY	25	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
103	LAP.APPENDICETOMY	20	F	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2
104	LAP.APPENDICETOMY	40	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
105	LAP.APPENDICETOMY	24	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
106	LAP.APPENDICETOMY	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
107	LAP.APPENDICETOMY	45	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
108	LAP.APPENDICETOMY	19	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
109	LAP.APPENDICETOMY	50	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1	2
110	LAP.APPENDICETOMY	19	M	2	2	2	2	2	2	2	2	2	2	1	2	1	1	2
111	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
112	LAP.APPENDICETOMY	13	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
113	LAP.APPENDICETOMY	33	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
114	LAP.APPENDICETOMY	21	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
115	LAP.APPENDICETOMY	16	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
116	LAP.APPENDICETOMY	25	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
117	LAP.APPENDICETOMY	14	M	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2
118	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
119	LAP.APPENDICETOMY	28	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
120	LAP.APPENDICETOMY	45	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
121	LAP.APPENDICETOMY	20	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
122	LAP.APPENDICETOMY	17	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

123	LAP.APPENDICETOMY	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
124	LAP.APPENDICETOMY	27	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
125	LAP.APPENDICETOMY	19	M	2	2	2	2	2	2	2	2	2	1	2	2	2	1
126	LAP.APPENDICETOMY	33	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
127	LAP.APPENDICETOMY	24	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
128	LAP.APPENDICETOMY	18	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
129	LAP.APPENDICETOMY	39	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
130	LAP.APPENDICETOMY	38	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
131	LAP.APPENDICETOMY	14	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
132	LAP.APPENDICETOMY	19	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
133	LAP.APPENDICETOMY	27	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
134	LAP.APPENDICETOMY	23	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
135	LAP.APPENDICETOMY	26	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
136	LAP.APPENDICETOMY	46	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
137	LAP.APPENDICETOMY	28	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
138	LAP.APPENDICETOMY	60	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
139	LAP.APPENDICETOMY	23	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
140	LAP.APPENDICETOMY	41	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
141	LAP.APPENDICETOMY	17	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
142	LAP.APPENDICETOMY	16	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
143	LAP.APPENDICETOMY	27	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
144	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
145	LAP.APPENDICETOMY	55	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
146	LAP.APPENDICETOMY	17	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
147	LAP.APPENDICETOMY	15	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
148	LAP.APPENDICETOMY	37	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
149	LAP.APPENDICETOMY	37	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
150	LAP.APPENDICETOMY	27	M	2	2	2	2	2	2	2	2	2	1	2	2	2	1
151	LAP.APPENDICETOMY	13	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
152	LAP.APPENDICETOMY	30	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
153	LAP.APPENDICETOMY	40	F	2	2	2	2	2	2	2	2	2	2	1	2	2	1
154	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1
155	LAP.APPENDICETOMY	25	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
156	LAP.APPENDICETOMY	22	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
157	LAP.APPENDICETOMY	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
158	LAP.APPENDICETOMY	27	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1
159	LAP.APPENDICETOMY	25	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
160	LAP.APPENDICETOMY	22	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
161	LAP.APPENDICETOMY	20	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
162	LAP.APPENDICETOMY	28	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
163	LAP.APPENDICETOMY	57	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
164	LAP.APPENDICETOMY	40	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
165	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
166	LAP.APPENDICETOMY	27	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
167	LAP.APPENDICETOMY	48	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2

168	LAP.APPENDICETOMY	32	M	2	2	2	2	2	2	2	2	2	2	1	2	2	1
169	LAP.APPENDICETOMY	15	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
170	LAP.APPENDICETOMY	13	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
171	LAP.APPENDICETOMY	33	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
172	LAP.APPENDICETOMY	26	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
173	LAP.APPENDICETOMY	13	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
174	LAP.APPENDICETOMY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
175	LAP.APPENDICETOMY	22	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
176	LAP.APPENDICETOMY	17	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
177	LAP.APPENDICETOMY	25	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
178	LAP.APPENDICETOMY	26	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
179	LAP.HERNIORAPPHY	50	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
180	LAP.HERNIORAPPHY	41	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
181	LAP.HERNIORAPPHY	6O	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
182	LAP.HERNIORAPPHY	30	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
183	LAP.HERNIORAPPHY	38	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
184	LAP.HERNIORAPPHY	62	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
185	LAP.HERNIORAPPHY	32	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1
186	LAP.HERNIORAPPHY	55	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
187	LAP.HERNIORAPPHY	45	M	2	2	2	2	1	2	2	1	1	2	2	1	2	1
188	LAP.HERNIORAPPHY	43	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
189	LAP.HERNIORAPPHY	40	M	2	2	2	2	2	2	2	2	2	1	2	2	2	1
190	LAP.HERNIORAPPHY	55	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1
191	LAP.HERNIORAPPHY	38	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
192	LAP.HERNIORAPPHY	35	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
193	LAP.HERNIORAPPHY	54	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
194	LAP.HERNIORAPPHY	29	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
195	LAP.HERNIORAPPHY	50	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
196	LAP.HERNIORAPPHY	55	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
197	LAP.HERNIORAPPHY	49	M	2	2	2	1	2	2	2	1	1	2	2	1	2	1
198	LAP.HERNIORAPPHY	42	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
199	LAP.APR	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
200	LAP.APR	70	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
201	LAP.APR	48	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
202	LAP.APR	65	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1
203	LAP.APR	60	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
204	LAP.APR	64	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
205	LAP.APR	56	M	2	2	2	2	2	2	2	2	2	1	2	2	1	1
206	LAP.VENTRAL HERNIAL REPAIR	4O	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
207	LAP.VENTRAL HERNIAL REPAIR	29	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
208	LAP.VENTRAL HERNIAL REPAIR	24	F	1	1	2	2	2	2	2	2	1	2	2	1	2	1
209	LAP.VENTRAL HERNIAL REPAIR	52	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1
210	LAP.VENTRAL HERNIAL REPAIR	55	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
211	LAP.VENTRAL HERNIAL REPAIR	54	F	1	1	2	2	2	2	2	1	1	2	2	2	2	2
212	LAP.VENTRAL HERNIAL REPAIR	27	F	1	1	2	2	2	2	2	1	1	2	2	1	2	1

213	LAP.VENTRAL HERNIAL REPAIR	27	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
214	LAP.VENTRAL HERNIAL REPAIR	45	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
215	LAP.VENTRAL HERNIAL REPAIR	51	M	2	2	2	2	2	2	2	1	1	2	2	1	2	1	
216	LAP.VENTRAL HERNIAL REPAIR	26	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
217	LAP.VENTRAL HERNIAL REPAIR	60	F	1	1	2	2	2	2	2	2	1	2	2	2	2	2	2
218	LAP.VENTRAL HERNIAL REPAIR	45	M	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
219	LAP.VENTRAL HERNIAL REPAIR	31	M	2	2	2	2	2	2	2	1	1	2	2	1	2	1	
220	LAP.VENTRAL HERNIAL REPAIR	46	F	2	1	2	1	2	2	2	1	1	2	2	1	2	1	
221	LAP.VENTRAL HERNIAL REPAIR	43	F	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
222	OTHERS	20	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
223	OTHERS	35	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
224	OTHERS	40	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
225	OTHERS	15	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
226	OTHERS	20	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
227	OTHERS	37	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
228	OTHERS	50	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
229	OTHERS	45	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
230	OTHERS	55	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
231	OTHERS	55	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
232	OTHERS	29	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
233	OTHERS	24	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1	
234	OTHERS	19	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
235	OTHERS	20	M	2	2	2	2	2	2	2	2	2	2	1	2	2	1	
236	OTHERS	47	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
237	OTHERS	46	M	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2
238	OTHERS	20	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1	
239	OTHERS	23	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
240	OTHERS	38	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
241	OTHERS	42	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
242	OTHERS	55	M	2	2	2	1	2	2	2	2	1	2	2	2	2	2	2
243	OTHERS	38	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
244	OTHERS	16	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
245	OTHERS	24	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
246	OTHERS	28	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
247	OTHERS	50	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
248	OTHERS	45	M	2	2	2	1	1	2	2	2	1	2	2	2	2	2	2
249	OTHERS	24	M	2	2	2	2	2	2	2	2	2	2	1	2	2	1	
250	OTHERS	32	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
251	OTHERS	40	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
252	OTHERS	35	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
253	OTHERS	45	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
254	OTHERS	25	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
255	OTHERS	45	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
256	OTHERS	37	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
257	OTHERS	48	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

258	OTHERS	41	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
259	OTHERS	26	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
260	OTHERS	34	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
261	OTHERS	60	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
262	LAP.ADEHESIOLYSIS	53	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
263	LAP.ADEHESIOLYSIS	20	F	2	2	2	2	2	2	2	2	2	1	2	2	2	1
264	LAP.ADEHESIOLYSIS	43	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
265	LAP.ADEHESIOLYSIS	55	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
266	LAP.ADEHESIOLYSIS	27	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
267	LAP.ADEHESIOLYSIS	25	F	2	2	2	2	2	2	2	1	1	2	2	1	2	1
268	LAP.ADEHESIOLYSIS	24	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
269	LAP.LIVER ABSCESS DRAINAGE	43	M	2	2	2	1	2	2	2	2	1	2	2	2	2	2
270	LAP.LIVER ABSCESS DRAINAGE	21	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
271	LAP.LIVER ABSCESS DRAINAGE	48	M	2	2	2	2	1	2	2	2	1	2	2	2	2	2
272	LAP.LIVER ABSCESS DRAINAGE	24	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
273	LAP.LIVER ABSCESS DRAINAGE	40	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
274	LAP.LIVER ABSCESS DRAINAGE	42	M	2	2	2	2	2	2	2	2	2	2	2	2	1	1
275	LAP.LIVER ABSCESS DRAINAGE	38	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
276	LAP.LIVER ABSCESS DRAINAGE	28	M	2	2	2	2	2	2	2	2	2	2	1	2	2	1
277	LAP.LIVER ABSCESS DRAINAGE	29	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
278	LAP.LIVER ABSCESS DRAINAGE	46	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
279	LAP.LIVER ABSCESS DRAINAGE	28	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
280	LAP.LIVER ABSCESS DRAINAGE	46	M	2	2	2	1	2	2	2	2	1	2	2	2	2	2
281	LAP.LIVER ABSCESS DRAINAGE	35	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
282	LAP.LIVER ABSCESS DRAINAGE	47	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
283	LAP.LIVER ABSCESS DRAINAGE	56	M	2	2	2	2	2	2	2	1	1	2	2	1	2	1
284	LAP.LIVER ABSCESS DRAINAGE	29	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2
285	OTHERS	19	F	2	2	2	2	2	2	2	2	2	2	2	2	2	2
286	OTHERS	45	F	2	2	2	1	1	2	2	2	1	2	2	2	2	2
287	OTHERS	34	M	2	2	2	2	2	2	2	2	2	2	2	2	2	2